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SYPHILIS A RURAL PROBLEM *

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Since syphilis has been subjected to intensive study, more physicians know more about the disease in its clinical and therapeutic aspects than ever before. Nevertheless, its recognition and treatment have not yet been generally mastered in a degree commensurate with public needs. Whenever a malady depends for understanding and management on technical minutiae, men in general practice develop a fear neurosis as to their ability to master the problem, and exaggerate the endowments of their better trained brothers. Worse, the inexpert, partly because of their follies of doubt and partly because of inertia, adhere to old biases and antiquated methods, at the expense of society.

There is, indeed, little required to become a serviceable syphilis therapist. Three months in any good clinic in any city of a hundred thousand or more of population would furnish men of average training and dexterity the necessary degree of practical technic. It is not at all implied that an army of Fourniers would thus be mobilized. Nor is the need for so highly endowed a force imperative for the ordinary demands of the community. Rather do we require great numbers of practically trained medical soldiery. These would better be able to stem syphilis than can the small high command of accredited syphilographers alone from their metropolitan bases.

The discussion at the symposium on syphilis [1] jointly held by the Sections on Dermatology and Pharmacology at the New Orleans session of the American Medical Association, in 1920, revealed a rather higher degree of pharisaism than is wholesome for the public welfare. Any good physician can master any branch of medicine on which he concentrates. Geniuses may be few, but able men are numerous, and an Ehrlich can do nothing for society without the humble support of the great masses of practitioners. Knowledge is useless unless widely disseminated and, if mixed figures may be permitted, ambulatory friars are quite as necessary as the high priests guarding the ark of the covenant. There are and should be no mysteries in medicine.

As a matter of fact, syphilis is so common that it would be a physical impossibility for the available syphilographers to treat the afflicted without the aid of the rank and file of physicians. The reasons for energetic and prompt treatment are obvious. To mention infection of the innocent, transmission to wives and infants; the words tabes, paresis, aortic insufficiency, the loss to the community in time and work, will conjure up a picture sufficiently compelling to emphasize the need of a larger trained fighting force to cope with the malady than syphilographers alone afford.

The most effective way to create such a force is to simplify the weapons. The study of a few tables issued by the United States Public Health Service [2] stimulated the foregoing reflections and this brief exposition on a real public need. In the first place, I wish to state that I am kindled by no hysteria such as the sentimental exaggerations of Brieux ignited six or seven years ago. Nor can the dramatic possibilities of paresis, as employed by Ibsen in Ghosts, appeal to seasoned students of syphilis. Comparatively few syphilitics come to a highly dramatic end. But the small proportion is nevertheless unwarrantedly great, and could be substantially reduced if all physicians throughout the country were equipped against potentialities that should be neither minimized nor morbidly magnified.

DISTRIBUTION OF SYPHILIS

The tactics are simple. The battlefield is distinctly drawn on a map in Pamphlet 30. The population of the Southern states, except Virginia, Tennessee, North Carolina and New Mexico, presents 10 per cent. of venereal infection and over; the remainder of this group, together with West Virginia, Mississippi and New Mexico, from 5.01 to 7.5 per cent.; Oklahoma and Alabama, from 7.51 to 10 per cent.; and the rest of the country up to 5 per cent., the lowest incidence being in the New England states, the Dakotas, Minnesota, Wisconsin, Oregon, Idaho, Wyoming, Utah and Colorado, which do not exceed 2.5 per cent. Vermont has 1.3 per cent.; Hawaii, only 1.96 per cent.; New York, 2.91 per cent.; while Georgia has 13.03 per cent., and Florida, 15.63 per cent. These figures were supplied from an analysis of the second million of men drafted during the war. The ratio of syphilis in the total is not stated, but assuming it to be only 10 per cent. in a state the size of New York, there would be about 30,000 active syphilitics. Nor does this reveal the facts, for the drafted men were on the whole too young to have much more than active, or at least comparatively recent infections. These men were in their third decade. What of those in the fourth, fifth, sixth and even seventh decades, the older generations of syphilitics, with the complications and sequelae of the disease? It would be no overstatement to assume that the total syphilitic population of New York State would be between 150,000 and 180,000.

* Chairman's address, read before the Section on Dermatology and Syphilology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Arch. Dermat. & Syph., September, 1920.

2. Venereal Disease Pamphlets 30 and 47.

Venereal Disease Pamphlet 47 deals with an analysis, from the same source, of conditions in cities. Columbia, S. C., leads cities of from 30,000 to 40,000 inhabitants with 14.98 per cent.; Macon, Ga., leads those of from 40,000 to 50,000 inhabitants with 18.43 per cent.; Savannah, Ga., cities of from 50,000 to 100,000 with 27.45 per cent.; and St. Louis, cities of 500,000 and over with 8.58 per cent. In cities of from 30,000 to 40,000, Jamestown, N. Y., has only 0.8 per cent. of venereal infection; of cities of from 40,000 to 50,000 inhabitants, Racine, Wis., 1.15 per cent.; of from 50,000 to 100,000, Bayonne, N. J., 0.82 per cent., and New York City, in its class, has only 2.44 per cent. Except as to New York, of the major cities in this country, the municipalities suffer a greater incidence of venereal disease than the states at large. On the other hand, always in their respective classes, the cities with the greatest number of illiterates show the highest proportion of infection. Baltimore, St. Louis, Houston, Birmingham, Fort Worth, Augusta, Charleston, Jacksonville, Tampa, East St. Louis, Savannah, Galveston, Portsmouth (Va.), Montgomery, Macon, Wilmington (N. C.) and Columbia (S. C.), are among these. For Northern cities the incidence in East St. Louis, Ill., which is 22.7 per cent., and Detroit, which is 6.83 per cent., is truly astonishing. Equally astonishing is the low rate in New York City, 2.44 per cent., which indicates that whatever may be stated of the ethics and morals of a large metropolis, its sophistication, handmaid of intelligence, is a serviceable armor against what poetic justice might wish to exact as the fitting wages of sin. In fact, it may not be amiss to indicate that enlightenment and venereal disease exist in inverse ratio, and that community which, for industrial aggrandizement, political ascendency or race prejudice, battens upon the ignorance of a large portion of its citizenry, collects a usurious human toll that will be its own undoing.

PROPHYLAXIS AND TREATMENT

To cope with the problem, two lines of procedure may be followed: prophylaxis to prevent infection, and intelligent treatment when infection has taken place. Prophylaxis includes the employment of means during or after coitus that are recognized as effective. Venereal stations, modeled after those evolved in the army, would meet the requirements of prevention after intercourse. It goes without saying that high ethical standards, in other words, continence, are the only certain measures; but since humanity appears disinclined to relinquish its impulses because of the persuasion either of fear or of logic, it must shield itself from the consequences of its frailties. Speculation on this subject has no prominent place in the present paper, which is dedicated rather to a discussion of the proper economic management of the disease as a concrete fact.

So far it is clear that ignorance and the incidence of syphilis go hand in hand; that municipalities have greater syphilitic populations than sparsely settled districts, but that, with few exceptions, this difference is scarcely noteworthy. In other words, syphilis presents a rural problem at least as important as a municipal one. Actually, as a rural problem, it is more important, for municipalities are better fortified against the disease than are rural districts, because of their greater number of clinics and experts.

If New York State has only about 30,000 active or recent cases, it is conservative to estimate that there are at least 3,000,000 in the entire United States. Nor would conservatism be violated if we increase our conjecture by a million. Let us, however, accept the lower figure. There are about 140,000 physicians in the United States, or approximately one to every twenty-one active syphilitics. There may be a thousand trained syphilographers in the land, or about one to every 3,000 active or recent syphilitics, and most of these experts are in large cities inaccessible to most syphilitics. How, then, can the proper treatment be supplied wherever it is needed? Only by making it easy for all physicians to recognize and properly treat the disease.

There are sixty-two cities whose population exceeds 50,000. Undoubtedly each of these has at least one clinic in which the disease is properly managed. New York City probably has no less than twenty-five; Chicago, Philadelphia and Boston, at least half this number, and every state surely has one focus of enlightenment, such as the clinics at Ann Arbor, Rochester, Minn., Minneapolis and Cleveland. A three months' preliminary training for every physician in the country, and another month every two years for those whose native commonwealths furnish little opportunity for maintaining the knowledge gained, would amply cover the situation in a practical manner. And, if commercial inducements may be advanced, the community will more willingly pay well for good than for bad treatment, so that the time lost to physicians during their training would be amply made up for in subsequent remuneration. In the meantime, medical schools would be forced to provide an ample basic training so that graduates would not require the preliminary three months.

Without going into pedagogic details, a knowledge of the problem demands recognition of the cardinal signs of the disease, including its parasitology, the interpretation of the Wassermann test, a knowledge of the preparation and administration of arsphenamin, its indications and toxicology, and an understanding of mercury and the iodids. No doubt it would be better to have experts, but as has been pointed out, this is impossible except in cities. In any event, sufficiently trained general practitioners would form a most valuable reinforcement to experts, for peculiar or obscure cases could be brought to consultants. No district is prohibitively remote from adequate centers should exigencies arise demanding special aid.

One of the most effective methods of bringing proper treatment within convenient reach would be to divest treatment of its largely fancied complexities. To prepare arsphenamin for injection is something within the capacity of any one able to read the directions accompanying each ampule. To administer the drug skilfully requires experience. There are certain dangers inherent in its use. Both patients and physicians must be willing to face these risks, for the ultimate advantage of the community will thus be furthered. In cities this knowledge is not necessary for all, nor need risks be taken, for experts are available. Who should treat syphilitics in municipalities rests with the conscience of the physician and the wishes of the patient. In smaller communities and rural districts the risks must be assumed by the general physician, and it is distinctly necessary for him to equip himself, within reason, for any eventuality, even if he sees only one syphilitic in ten years, provided the patient is unable to go where he can find greater skill; for such patients, whether they reside in the mountains of West Virginia, the fastnesses

of the Rockies, or the less remote Adirondacks, are as much a public menace and concern as the metropolitan roué with fifty experts ready to his call. But physicians in such districts are, on the whole, still unqualified. First, their training remains inadequate; secondly, they feel unequal to the task because the preparation of arsphenamin possesses a fancied kinship to the black art; thirdly, it is expensive to lay in the necessary appurtenances considering their probably restricted use; fourthly, it is difficult to obtain the proper water, and the cost of a still would be heavy. It must be remembered, however, that a still has other medical uses than merely to prepare water for intravenous injections, and a well equipped physician should be able to prepare distilled water, since it is indispensable in nearly all of his work.

The subjective difficulties would be surmountable, but the financial ones are more serious, for the necessary equipment for arsphenamin administration with breakage and wear and tear amounts to a substantial investment, the turnover on which in rural regions would be inadequate. In a lesser degree the same applies to the administration of mercury by injection. Thus, conservatism forces rural practitioners to perpetuate the archaic method of pill therapy with its manifest and well recognized ineffectiveness, if not peril, or forces them to use arsenical preparations which circular 219 of the United States Public Health Service distinctly warns against.

This body, in the circular mentioned, recognizes only the preparations of the arsphenamin group manufactured by the Dermatological Research Laboratories of Philadelphia, H. A. Metz, and the Takamine Laboratories, the Diarsenol Company, and the permanent solution of the Lowy Laboratory. Certainly, any physician could easily master the use of neo-arsphenamin. Neo-arsphenamin is easier to administer. In slightly larger and more numerous doses than generally employed, it is probably as efficacious as arsphenamin. Probably, too, the manufacturers could be induced to supply ampules containing the right amount of distilled water for each dose of the drug. Thus, all the physician would require by way of apparatus would be a sterile syringe, for neo-arsphenamin may be administered in a high degree of concentration, and would simply have to be dissolved in the distilled water supplied. Or, if arsphenamin was preferred, the permanent solution referred to would meet all needs in a manner completely divested of the technical and financial encumbrances outlined. Silver arsphenamin, too, should be considered.

It is not purposed to discuss the relative merits of the various preparations. It resolves itself into a matter of individual opinion whether neo-arsphenamin, properly employed, is superior or inferior to the older substance, the utilization of which is somewhat more complex. In any event, two forms of the arsphenamin group, to say nothing of silver arsphenamin, are available for everybody, and their employment is technical simplicity itself.

CONCLUSION

The art of treating syphilis is something that only the seasoned can master. There is no absolute routine. Each patient presents peculiar questions which lend themselves to fine appreciation only by those of rich experience, but the first step is simplification of method. So far as the problem is largely a rural one, this is the most important step. The situation may be compared with that in obstetrics. If every physician called to a confinement were a Marion Sims there would be fewer accidents, but for the average case, the average alert practitioner will do. After all, the majority of presentations are left occipito-anterior, and the majority of cases of syphilis, were it only known, have the same relative simplicity. When called on, the average physician can perform a low forceps delivery; when called on, he should be able to treat the ordinary case of syphilis by approved methods. Medical schools giving proper training, medical centers cooperating with rural districts, the simplification of technic rather than increased complexity, will render this possible. Mahomet graciously accommodated himself to the mountain in deference to established geographic conditions.

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FRAMINGHAM COMMUNITY HEALTH AND TUBERCULOSIS DEMONSTRATION

CERTAIN MEDICAL RESULTS *

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The Framingham Community Health and Tuberculosis Demonstration has been in active operation now for more than four years. This is too short a time completely to evaluate the results of this work, but certain medical observations that have been made can be given at this time. It is to be remembered in the study of any of the aspects of this demonstration that at no time has medical treatment been offered by any physicians connected with the demonstration staff. Most of the medical work at the present time is being done through the consultation service, at the request of physicians, and the results that have been obtained have been due to the cooperation of the physicians. While some of the cases of tuberculosis that have existed in Framingham have had no direct contact with the health station, practically all of the cases have been studied at least through their histories.

Interesting aspects of the work may be studied under these heads: (1) the amount of tuberculosis in Framingham; (2) diagnostic methods used in discovery; (3) study of arrested cases that have become active during the demonstration; (4) deaths from tuberculosis and a study of their histories, (5) present status of cases discovered during the demonstration.

The amount of tuberculosis discovered in the early part of the demonstration, through all channels, indicated that 1 per cent. of the people had active pulmonary tuberculosis. In the early part of the demonstration when the so-called examination drives were held, nearly 5,000 people were examined, and the number of cases of tuberculosis discovered was considerably in excess of what has been discovered at any time since.

The average number of tuberculosis cases reported to the board of health in Framingham in the decade before the demonstration started was thirteen per year. During the last four years, the average number of cases

* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

reported to the board of health has been forty-three per year. In 1917, the first year of the demonstration, when the physical examination drives were held, there were fifty-seven cases reported.

In the four years since the demonstration started there have been 138 cases of tuberculosis placed on our chart in the apparently arrested group at the time of discovery. On careful reconsideration, twenty-one of these have now been placed in the deferred group, as data are not sufficient for one to be reasonably sure that the patients had tuberculous disease at any time. It is hoped that a further study of these cases can be made and that they can be definitely classified. Ten of the tuberculous cases discovered in the apparently arrested form have become active since the demonstration started. We shall return to this group later.

At the present time (June, 1921), the number of active tuberculous cases is considerably less than at any time since the demonstration started. On our list we find fifty-three cases active at the present time. Out of the fifty-three cases, fourteen are in sanatoriums or hospitals. In our apparently arrested group of cases, there are also being studied 119 people, with four of them in sanatoriums or hospitals.

In the diagnosis of tuberculous disease, in all cases that have been seen by the community demonstration examiner, the diagnostic standards prepared for this demonstration have been followed closely. These standards, covering pulmonary and nonpulmonary disease in childhood and adults, were prepared for the demonstration by a committee appointed by the president of the National Tuberculosis Association, and then published in pamphlet form by the demonstration committee. Additional issues were necessary to supply the demand from all over the United States, and the standards are now published, and furnished in pamphlet form, by the National Tuberculosis Association.

It is to be remembered that not all of the cases of tuberculosis recorded on our chart have been seen by the community health examiner, and the information obtained has occasionally been through the cooperation of the physicians, and the board of health and other cooperating agencies. There were, at the time the demonstration opened, twenty-seven cases of tuberculosis that were being followed by the board of health, and these were considered in the group from which the figures in this paper have been taken.

In analyzing the apparently arrested cases of tuberculosis that have become active during the period of the demonstration, numbering ten, a few interesting features have been discovered. Out of this number, three cases have apparently no reason for activation; in two cases there have been acute infections which seemed responsible for their upset. Poor economic conditions seemed possibly to be responsible in three cases for activation, and three were due to lack of understanding on the part of the patients, or unwillingness properly to care for themselves. To assign the exact cause of reactivation of cases of tuberculosis that have had an apparent arrest is very difficult, and it has been the purpose of this study to analyze carefully such cases where possible. Even with the most careful history and a study of all the factors which might be involved, it is impossible in all instances to make any definite statement as to the cause of the loss of resistance in these cases and the reason of their reactivation.

Since the demonstration opened there have been eighteen deaths that, after careful analysis of their histories, it would seem should have been prevented or at least postponed, if our machinery had been in perfect working order and cooperation had been satisfactory. This number represents one fifth of the total number of deaths analyzed since the demonstration opened. During the four-year period, out of a group of 376 individuals, including active, arrested, early and advanced disease, 21 per cent. died. Those whose deaths were classified as preventable or postponable constitute 4 + per cent. Consequently, the percentage of the total that might be considered to represent the irreducible fatality rate for such a representative group of tuberculous individuals over a period of four years would be 21 per cent. minus 4 per cent., or 17 per cent. Several of these cases were not discovered until the disease was far advanced, and apparently, with our present machinery, a few should not be discovered in an earlier stage. Two or three patients were of the secretive type who did not seek medical advice until they were in a hopeless condition. This class of people are apparently found in every community, and there seems to be little or no hope of ever discovering cases of this type. Poor economic conditions played an important part in advancing the disease in only a small number of this group.

In connection with this group of patients that have died when their deaths might have been prevented or postponed, we have analyzed the fifty-eight tuberculous cases discovered in the advanced list (including cases reported at death). An analysis of this group would seem to show that nine cases should have been discovered and reported in an incipient or moderately advanced stage. In arriving at these conclusions, we have used the histories at our disposal. Two of the patients out of this number reported as tuberculosis in an advanced stage were probably not advanced at the time of being so reported on our chart, in which the histories were very meager because of lack of machinery to get reports in the early part of the demonstration. Out of the foregoing fifty-eight cases, there were ten discovered before the demonstration started, and advanced at the time of being placed in our group.

Table 1 shows from what groups these advanced cases were recruited.

TABLE 1.—GROUPS FROM WHICH ADVANCED CASES WERE REPORTED

Patients moving here from out of town and advanced at time of coming here; also patients that were not Framingham residents and could be considered as floaters	18
Cases reported at death	9
Cases of acute onset after influenza and influenzal pneumonia, apparently in good health preceding influenza	2
Tuberculous meningitis, acute miliary tuberculosis	2
	31

The remainder of the cases we were unable to tabulate because of some special history defect. Of the nine cases in this group which we believe should have been discovered in an earlier stage, one occurred in 1918, four in 1919, and four in 1920.

From the point of view of treatment, all the cases at the time the demonstration started and discovered since have been analyzed, and the percentage that have had sanatorium or hospital treatment have been noted in Table 2. This does not include patients that have

left town during the period of the demonstration, but does include the patients that have died and had hospital or sanatorium periods.

From the incipient group, up to the present time, there has been one death, a case that was discovered in what we believe to have been an incipient stage since the demonstration started. From the early group 6 per cent. have died; from the moderately advanced group, 28 per cent.; from the far advanced rapid group, 92 per cent.; from the advanced slow group, 37 per cent.; from the advanced stationary group, 40 per cent,

TABLE 2.—PERCENTAGE OF PATIENTS WHO HAD SANATORIUM OR HOSPITAL TREATMENT AT THE TIME DEMONSTRATION STARTED AND DISCOVERED SINCE

Groups	Per Cent.
Incipient cases	47
Early cases in town	45
Moderately advanced cases	65
Advanced rapid cases	78
Advanced slow cases	61
Advanced stationary cases	80
Arrested advanced cases	14
Arrested early cases	17

and from the arrested early group, two have died. One of these patients had bronchopneumonia. The other was one of the group of arrested cases that became active, and died.

In the first year of the demonstration after the examination drives and through all sources of discovery, there were nine or ten active cases of tuberculosis to one annual tuberculosis death. At the present time the number has dropped, so that while the numbers may change a little from month to month, at present there are about five active cases to each annual tuberculosis death.

SUMMARY

The chief factors that seem to be responsible for the late discovery of tuberculosis cases which give to the community every year advanced and dying patients that have not been known or treated for tuberculosis in the early stages of the disease are: the recluse type, which seems to be the main type, never receiving any medical attention; failure of patients to seek medical advice early, or, if they do, not to give the physician sufficient time to make a diagnosis; occasional failure of physicians to detect disease early; failure of both physician and patient to use all of the services at their command for early diagnosis of tuberculous disease; lack of complete annual medical examination, and lack of annual factory and school examinations.

ABSTRACT OF DISCUSSION

DR. ROGER I. LEE, Boston: Dr. Bartlett has confined himself very strictly to the medical results of this remarkable demonstration. Many of the other results have been published elsewhere, but we should confine ourselves to the actual medical results of the demonstration. It is necessary to remember that the Framingham demonstration is purely voluntary and unofficial. It has no official standing in the town of Framingham. Therefore everything is accomplished through the medium of the cooperating official agencies, the board of health, etc. The national association has appointed a committee, of which I am the chairman, to study the medical results of the Framingham demonstration. As the Framingham demonstration does not undertake to treat any cases, it does not have very much in one sense in the way of medical results. On the other hand, the demonstration has had a remarkable experience in that it has, as Dr. Bartlett pointed out, all kinds and conditions of patients. It has patients who are cooperative, and patients who are absolutely not cooperative. It has seemed, therefore, that it might be possible to evaluate some of the methods of treatment, because one has control statistics here at Framingham. Most of our statistics previously have been furnished by cooperative patients who were willing to go to a given sanatorium or hospital, or who were willing to participate in a tuberculosis class for home care. In Framingham they have had all kinds of patients. It would seem, therefore, that it might be possible to get some real facts with regard to the efficiency of the treatment of tuberculosis among people as we actually find them in a typical community like Framingham. Framingham was selected for this demonstration because it was regarded as a typical community so far as one could be found in the United States. Dr. Bartlett is now working up his data from this angle, and possibly some valuable information can be obtained.

DR. EDWARD O. OTIS, Boston: The Framingham demonstration has been a serious and sustained attempt to determine the amount of tuberculosis existing in a typical industrial town, and to see that proper treatment was afforded to those requiring it. It may be called a great laboratory investigation for the purpose of obtaining facts on which to base methods and practice to guide other communities in solving their tuberculosis problem. Several leading facts were brought out as the demonstration went on. In the first place, there was the striking difference in the cases reported before the beginning of the demonstration and afterward, thirteen and forty-three, respectively. When the consultant service came into play in this demonstration, the condition was very much improved. Another fact brought out was the relation between the deaths and the number of active cases, one to nine or ten at the beginning, and later one to five. Dr. Bartlett says that, after eliminating all deaths that might have been prevented by earlier discovery and treatment, there finally remains an irreducible minimum of 16 per cent.—which means that all we can ever do in the campaign against tuberculosis is to strive to reach and maintain this irreducible minimum; and this we must do, as Dr. Bartlett says, by using all available resources, both medical and social. As the majority of children become infected before the adolescent age, it would seem to be a reasonable procedure to test all schoolchildren by the von Pirquet test to guard them against converting their immunity infection into an active one. This Framingham demonstration has also been fruitful in stimulating the community to establish other general health measures, for it is only by the combination of all health activities that we can best and most effectively combat tuberculosis. A certain number of supposedly arrested cases will always relapse; but by after-care and instruction we can reduce this number to the minimum amount. Unfortunately, in our industrial civilization many inevitable risks have to be taken which conduce both to the development of active tuberculosis and to its reactivation, after the man with an arrested disease has returned to his former occupation, as he generally does. Of all the methods employed by the Framingham demonstration, the most important was the expert consultant, on whom the local physicians could call at any time for advice.

DR. PHILIP C. BARTLETT, Framingham, Mass.: In studying the histories of our tuberculous cases during the last few days I have found that there are so many factors involved that it seems best to make a very careful study of these histories, as there are a large number of cases in our tuberculous group, active and arrested, that have never had sanatorium or hospital treatment. It is our purpose to see what proportion of them would have been benefited by sanatorium or hospital treatment, and also the number that have apparently done well at home.

Syphilis in the Third and Fourth Generation.—J. Audrain publishes in the *Bulletin* of the French Société de Dermatologie, Feb. 10, 1921, p. 85, the tabulated details of thirty families through three or four generations from a progenitor with unsuspected syphilis. Comparing the different families and generations confirms the law of persistent localization of the lesions and their periodicity, and the rarity of pain in them; also a peculiar moral and physical energy, a functional excitation which may be felt in all the organic systems and even in the exaggeration of the appetite and of the "ego."

TREATMENT OF ACUTE POLIOMYELITIS WITH IMMUNE HORSE SERUM

SUMMARY OF RESULTS

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The apparent good effects in the treatment of poliomyelitis with an immune horse serum prepared by repeated injection of the pleomorphic streptococcus from poliomyelitis [1] were demonstrated in a series of cases during the epidemic at Davenport, Iowa, in 1917.[2] Similar serums were used in an epidemic at Dubuque, Iowa, in 1918, and have been used since in sporadic cases by myself and by physicians in various parts of the United States to whom the serum was sent on request. Owing to the increased incidence of poliomyelitis during the hot weather of the summer months, a detailed analysis of the further results obtained in the treatment of this disease was undertaken. The results are such as to warrant a short summary.

In selecting the method of administering the serum, intraspinal injections were not considered advisable, because intraspinal injections of horse serum render monkeys more susceptible to virus (a point overlooked by Amoss and Eberson,[3] who gave only intraspinal injections in testing the protective effect of my serum against experimental poliomyelitis in monkeys), because the virus is only rarely present in spinal fluid, and because I found that the intraspinal injection of immune horse serum failed to protect monkeys against intracerebral inoculations of virus, whereas intravenous injection protected them against properly gaged doses of virus, not too far removed from the human source,[1] and that intravenous and intramuscular injections in man gave excellent results.[2] Nuzum and Willy, who used a similar serum, obtained similar results in protecting monkeys against virus [4] and in the treatment of the disease in man.[5]

In the Dubuque epidemic,[6] as in the epidemic at Davenport and in the sporadic cases, the patients were not removed from their homes. The necessary equipment for spinal puncture and immediate examination of fluid was carried from house to house. The patients were seen in consultation with the family physician. The history, the spinal fluid, and other findings, and the results obtained following the serum injections were obtained first hand.

In the series of patients treated by other physicians, information concerning them was reported on cards which were sent with each shipment of serum. The chief items asked for were the sex and age of the patient; the condition of the teeth, tonsils, cervical glands, and adenoids; description of the poliomyelitic symptoms—the date of onset, extent of muscular weakness and paralysis, the spinal fluid findings (amount of fluid withdrawn, the cell count, and the globulin test); the method of serum injection, the date on which the serum was injected and the amount given; the effect, if any, on the temperature, pulse rate and other symptoms; the immediate and late results with regard to the arrest of progressive paralysis; restoration of muscle function; exposure to other patients, whether or not more than one member of a family was affected, and whether there were other cases in the community.

For purposes of study, the patients in each series were divided into three groups according to their condition at the time of treatment: Group 1, patients in the preparalytic stage; Group 2, patients with slight paralysis, and Group 3, patients with advanced paralysis.

The cases summarized in the table represent the series which I treated in the epidemic at Davenport (fifty-eight cases), the epidemic at Dubuque (fifty-eight cases), and sporadic cases (fifteen) since those epidemics, 131 in all, and 128 cases treated by physicians to whom the serum was sent.

SUMMARY OF RESULTS, ACCORDING TO GROUPS, OF ALL PATIENTS TREATED WITH THE SERUM

Condition of Patients	Patients	Deaths	Recovery With Residual Paralysis	Complete Recovery	Recovery Without Developing Paralysis	Early Good Effects	Late Results Unknown	Effect Doubtful or Not Apparent	Average Cell Count	Average Duration of Disease at the Time of First Serum Treatment, Days	Average Age, Years	Average Amount of Serum Given Each Patient, C.c.
Group 1. Patients without paralysis at the time of serum treatment	60	0	0	60	59	59	0	1	114	1.7	5.3	18
Group 2. Patients with slight paralysis at the time of serum treatment	61	0	1	60	0	58	0	3	150	2.1	5.4	22
Group 3. Patients with advanced paralysis at the time of serum treatment	123	18	20	61	0	74	14	34	117	5.8	7.2	32
Sporadic cases	15	1	6	8	..	12	0	3	148	3.4	5.3	40
Total	259	19	37	189	59	203	14	41	119	3.8	6.2	27

Following the administration of the serum during the febrile stage, the temperature and pulse rate were lowered in a high percentage in each of the four series of cases. Abolished reflexes returned, or diminished reflexes became stronger. Often restless, hyperesthetic, irritable, wakeful children went to sleep soon after the injection, and the mental condition even of semicomatose, apathetic children became normal within a short time. Often progressive paralysis was arrested, or groups of weakened muscles showed increased power very soon after the injection, provided it was given soon after weakness appeared. Postparalytic pains and slight increase in the function of muscles occurred even as late as ten days after the onset of paralysis.

None of the sixty patients of Group 1, treated in the preparalytic stage, died, and all recovered completely without residual paralysis. Paralysis developed in only one of these, and in this one it was slight. Early good effects, such as diminution in the temperature and pulse rate, and lessening of rigidity of the neck and spine, were noted in all but one of these cases.

Of sixty-one patients in Group 2, with slight paralysis at the time of the serum treatment, all but one

1. Rosenow, E. C.: The Production of an Antipoliomyelitis Serum in Horses by Inoculations of the Pleomorphic Streptococcus from Poliomyelitis, J. A. M. A. **69**: 261 (July 29) 1917.

2. Rosenow, E. C.: Report on the Treatment of Fifty-Eight Cases of Epidemic Poliomyelitis with Immune Horse Serum, J. Infect. Dis. **22**: 379 (April) 1918.

3. Amoss, H. L., and Eberson, F.: Therapeutic Experiments with Rosenow's Antipoliomyelitic Serum, J. Exper. Med. **27**: 309 (Feb.) 1918.

4. Nuzum, J. W., and Willy, R. G.: Further Studies of an Antipoliomyelitic Serum, Its Protective and Curative Properties in Experimental Poliomyelitis of Monkeys, J. Infect. Dis. **22**: 258 (March) 1918.

5. Nuzum, J. W., and Willy, R. G.: Specific Immune Therapy of Epidemic Poliomyelitis, a Report of One Hundred Fifty-Nine Cases Treated with Antipoliomyelitic Horse Serum, J. A. M. A. **69**: 1247 (Oct. 15) 1917.

6. Rosenow, E. C.: The Etiology and Treatment of Acute Poliomyelitis, Minnesota Med. **2**: 253 (July) 1919.

recovered completely, and in this one residual paralysis was limited to the shoulder muscles. Early good effects were noted in all but three of the patients in this group.

Of the 123 patients in Group 3, with advanced paralysis, eighteen died. Eleven of these had symptoms of involvement of the medulla at the time of the treatment. Thirty have residual paralysis; in fourteen the late results with regard to the paralysis are not known; sixty-one recovered completely.

One of the fifteen patients with sporadic poliomyelitis died. Six recovered with residual paralysis. The serum was given late in the disease to all of these patients.

The average duration of illness at the time of the first serum treatment was shortest in Group 1 (one and seven-tenths days), somewhat longer in Group 2 (two and one-tenth days), longest in Group 3 (five and eight-tenths days), and in the group of sporadic cases three and four-tenths days, a total average of three and eight-tenths days. The cell count was almost equally high in the three groups, and somewhat higher in the group of sporadic cases. The average age was nearly the same in all. The average amount of serum given was 18 c.c. in Group 1, 22 c.c. in Group 2, 32 c.c. in Group 3, and 49 c.c. in the group of sporadic cases.

Nineteen of the 259 patients treated died, a mortality of 7.3 per cent. Seven of the patients were moribund at the time of the treatment, and the outcome should not be counted against the serum. In four others, respiratory muscles were involved, and swallowing was difficult because of marked and rapidly advancing paralysis at the time of the first serum treatment. A 2 weeks old baby who died, seemingly of inanition, was given only 5 c.c. of serum, subcutaneously. If these eleven patients in whom serum could scarcely be expected to stay the process are eliminated, there are 248 pateints whose conditions might have been affected by the serum. Eight of these died, a mortality of 3.2 per cent.

Residual paralysis is known to be present in thirty-seven patients (21 per cent.), and if the fourteen patients in whom the late results are not known are added, the total might be fifty-one (29 per cent.), which is in sharp contrast to the incidence of residual paralysis reported for the 1916 epidemic in New York City:[7] 6.4 per cent. of 2,715 patients.

Of 197 paralyzed patients, nineteen (9.6 per cent.) died; eliminating the eleven patients whose cases were hopeless at the time of the serum treatment, the mortality is 4 per cent. Thirty-seven (21 per cent.) of the 176 paralyzed patients who survived are known to have residual paralysis. In fourteen the late results are not known, but, granting that they all have residual paralysis, which, judging by the early findings, is not likely, the total might be fifty-one (29 per cent.). This incidence of residual paralysis is far lower than was the average in paralyzed patients in a number of epidemics in Europe, summarized by Wickman.[8] In Wickman's compilation of 1,405 cases, residual paralysis occurred in 970 (68 per cent.).

Moreover, the outcome, with regard both to death and to restoration of muscle function in the patients treated, is far better than that noted in the patients not treated at Dubuque[6] and at Davenport,[2] and in the other patients who were ill at about the same time and in the same communities. Of a total of seventy-two patients not treated whose cases have been studied, nineteen (25 per cent.) died of respiratory paralysis. This does not include the eleven patients treated whose cases were hopeless. If these are added, the mortality is 36 per cent. The mortality in the untreated patients in this series is somewhat higher than that for the epidemic of 1916 in New York City, which is variously estimated at from 16 to 25 per cent. The final outcome in twenty-five cases in which the patients were untreated was determined. Of these patients fourteen (56 per cent.) had varying degrees of residual paralysis.

A comparison of the results obtained with immune horse serum with those obtained with serum from convalescent persons is indicated, since Amoss[9] in a recent paper infers that the latter is the only serum treatment available. In my reports on the results obtained at Davenport,[2] it was shown that the mortality and incidence of paralysis in patients treated in the preparalytic stage was less than was reported from the use of serum from convalescent persons. There were no deaths, as is shown in the table, and only one patient developed slight paralysis, which disappeared completely in a group of sixty patients treated in the preparalytic stage, and no deaths and only one patient with slight residual paralysis in a group of sixty-one patients treated after paralysis had begun, but which was slight at the time of treatment. Thus, of a total of 121 patients treated in the early stages, none died, and only one showed slight residual paralysis.

In contrast are the results reported from the use of the serum from convalescent persons in the preparalytic stage of the disease. Ten of fifty-four patients treated by Zingher[10] developed paralysis; six of fourteen treated by Amoss and Chesney[11] developed paralysis, and two died; sixteen of fifty-one in Peabody's[12] series developed paralysis, and five died. Thus, of a total of 119 patients treated in the preparalytic stage, 26.8 per cent. developed paralysis, and 5.8 per cent. died.

It should be stated that nearly all physicians who had opportunity to observe the effects of the immune horse serum became convinced that it possesses definite and often striking power to prevent paralysis, that it is of definite benefit if given within from thirty-six to forty-eight hours after the onset of paralysis, and that if given after that it is of less value.

The epidemics studied were severe. The mortality rate and incidence of residual paralysis in the untreated patients were high. The patients treated lived in widely separated communities.

There was no difference in the severity of the early symptoms in the patients untreated and in the different groups in the patients treated. The average age was somewhat higher in Group 3, patients with advanced paralysis, but on the whole it corresponded accurately to the usual age incidence in this disease. The various types of the disease were quite equally divided among the groups. The incidence of contact infection approxi-

7. A Monograph on the Epidemic of Poliomyelitis in New York City in 1916, New York City, Department of Health, 1917, p. 391.
8. Wickman, I.: Acute Poliomyelitis, Nervous and Mental Disease Monograph, Series No. 16, New York, Journal of Nervous and Mental Diseases Publishing Company, 1913, p. 135.
9. Amoss, H. L.: The Serum Treatment of Acute Poliomyelitis, J. A. M. A. **76**: 110 (Jan. 8) 1921.
10. Zingher, Abraham: The Diagnosis and Serum Treatment of Anterior Poliomyelitis, J. A. M. A. **68**: 817 (March 17) 1917.
11. Amoss, H. L., and Chesney, A. M.: A Report on the Serum Treatment of Twenty-Six Cases of Epidemic Poliomyelitis, J. Exper. Med. **25**: 581 (April) 1917.
12. Peabody, F. W.: A Report of the Harvard Infantile Paralysis Commission on the Diagnosis and Treatment of Acute Cases of the Disease During 1916, Boston, M. & S. J. **176**: 637 (May 3) 1917.

mated the average in other series of cases. The average cell count in the spinal fluid and the average amount of serum given were about the same in the various groups.

The good effects noted at the bedside following the injection of the serum were in general proportional to the earliness of the injection. They were often striking, occurred after repeated injections, and were independent of the withdrawal of spinal fluid. When improvement occurred, it was with such regularity and in such marked degree in the early cases as to exclude accidental occurrence and to indicate that the absence of deaths, the low incidence of paralysis, and almost total absence of residual paralysis in Groups 1 and 2 are due to the early administration of the serum.

The results in the collective investigation corroborate in detail those which I obtained in both epidemics and in the sporadic cases in which the primary data were obtained at first hand.

The conclusion that my immune horse serum, prepared by repeated injections of increasing doses of freshly isolated strains of the pleomorphic streptococcus, has curative power in poliomyelitis, especially when given in the early stage of the disease, is warranted. Its general use in the treatment of this dread disease is indicated, and the need for early diagnosis in suspicious cases by spinal puncture is again emphasized.

CERTAIN ASPECTS OF POSTDIPHTHERITIC DIAPHRAGMATIC PARALYSIS

REPORT OF EIGHT FATAL CASES IN FOUR THOUSAND TWO HUNDRED AND FIFTY-NINE CASES OF DIPHTHERIA *

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When one attempts to review the literature on the subject of postdiphtheritic diaphragmatic paralysis, one is struck by the fact that it is scanty and incomplete. The condition is barely mentioned, and when mentioned is passed over without much comment, and few cases are reported in detail. And yet, as we shall make apparent, it is a fairly common sequel of diphtheria, a much-dreaded one, and one which should be looked out for, particularly in those cases in which antitoxin has been given after the third day of the disease.

A word in regard to postdiphtheritic paralysis in general, excluding the diaphragmatic type, for the time being: Of all the sequelae of diphtheria, paralysis is undoubtedly the most common and the most important. It occurs in from 10 to 25 per cent. of all cases and is strictly a sequel, usually occurring in the second or third week of convalescence. It may follow mild cases of diphtheria, and by some observers, notably Osler and Huber, it has been stated that it may have no relation to the previous treatment of the disease, whether antitoxin is given or not. Nor do they think that the type, mild or severe, determines its occurrence. It is possible that the local lesion may go unrecognized, and there have been cases cited, and the onset of the paralysis alone may call attention to the previous infection by the Klebs-Loeffler bacillus. It is our opinion, however, that there is a distinct relationship of the initial angina to the frequency and severity of the paralysis. In other words, the more severe the diphtheritic attack, the more frequent and severe are the various paralyses liable to be, and in no type does this follow more closely than in the diaphragmatic type. In our series of eight cases, every one was preceded by the severe type of diphtheritic angina. We also feel, and it is the opinion of later writers on the subject, that the early administration of antitoxin by the intravenous route diminishes the liability to paralysis.

ANATOMY OF THE PHRENIC NERVE

As diaphragmatic paralysis is primarily due to a degeneration of the phrenic nerves, it does not seem amiss to emphasize their anatomy:

The phrenic nerves arise chiefly from the fourth cervical nerve, with a few filaments from the third, and a communicating branch from the fifth cervical nerve. They descend to the root of the neck, enter the chest, and descend nearly vertically in front of the root of the lung and by the side of the pericardium, between them and the mediastinal portion of the pleura, to the diaphragm, where they divide into branches, some of which are distributed to the thoracic surface, but most of which separately pierce the diaphragm and are distributed to the under surface. Each nerve supplies filaments to the diaphragm, pericardium and pleura. Branches have been described as passing to the peritoneum. From the right nerve one or two filaments pass, to join in a small ganglion with phrenic nerve branches of the solar plexus; and branches from this ganglion are distributed to the hepatic plexus, the suprarenal capsule, and the inferior vena cava. From this wide distribution, it can readily be seen how dangerous involvement of the phrenic nerve might be. Surgically, one may be cut or affected, without death, as only unilateral paralysis of the corresponding half of the diaphragm results. This is recognized with difficulty, as the patient can still take deep inspirations, the thoracic muscles not being paralyzed. It is obvious that any bilateral involvement of the phrenic nerve means complete diaphragmatic paralysis with ensuing death within three and a half days, at the latest.

PATHOLOGY

The paralysis affecting the phrenic nerve is the result of a toxic peripheral neuritis, a parenchymatous degeneration of the nerves, and is not of central origin. The direct application of the toxin to the nervous system causes a degeneration, and an inflammatory action starting at the point of application and spreading from that point on. The toxin first attacks the myelin sheath, then the nerve, and finally the nerve center in the medulla. This slow course would explain the late onset of the neuritis following diphtheria, although just why it should affect the palatal nerve supply more frequently is conjectural, aside from its anatomic nearness to the portal of entry. To quote Batten: "It is at the present time generally recognized that the lesion most com-

* From the Diphtheritic Service, Willard Parker and Riverside Hospitals, Department of Health.
* Read before the Section on Diseases of Children at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

monly found in a diphtheritic paralysis is a parenchymatous degeneration of the myelin sheath of the nerves, and that this degeneration affects both motor and sensory fibers alike." Ehrlich's theory that the paralysis is caused by the toxon,[1] while the general poisoning is caused by the toxin has been confirmed by later observers. It has been shown that there is no relation (Dunn) between the size of the dose of toxin necessary to produce death and that which produces paralysis. Apparently the power of diphtheria toxin to produce paralysis, and its power to produce death, are distinct features. It has also been demonstrated that antitoxin

TABLE 1.—ONSET OF PARALYSIS AFTER ONSET OF DIPHTHERIA

	Series I Days	Series II Days
Case 1	44	37
Case 2	44	38
Case 3	32 (?)	?
Case 4	42	42
Average	40 3 cases	39
Grand Average	.. 7 cases	39½

never produces paralysis per se. The apparent increase in the number of cases of postdiphtheritic paralysis since the introduction of antitoxin is due to the fact that many severe cases, which formerly would have resulted fatally, go on to paralysis instead

FREQUENCY OF PHRENIC NERVE PARALYSIS

It will be found by examining our two series of cases that the frequency of this paralysis is higher than one would suppose. Our figures, Series I, show fifty cases of paralysis of all kinds in 2,000 cases of diphtheria, or 2.5 per cent. In Series II, there are forty-nine cases of paralysis in 2,259 cases of diphtheria, or 2.1 per cent. This corresponds closely to the first series. In the first series of fifty cases, four were diaphragmatic, making a percentage of 8 in all cases of paralysis, or 0.2 per cent. of all cases of diphtheria. In Series II, of forty-nine cases, four were diaphragmatic, making a percentage of 8.1 in all cases of paralysis, or 0.16 per cent. of all cases of diphtheria. J. D. Rolleston's figures were much lower. He reports sixteen cases of diaphragmatic paralysis in 864 cases of paralysis, or 1.85 per cent. It is interesting to note in this connection that he states

TABLE 2.—DURATION OF PARALYSIS FROM FIRST INVOLVEMENT OF DIAPHRAGM TO DEATH

	Series I Hours	Series II Hours
Case 1	10	28
Case 2	43	80
Case 3	48	38
Case 4	8	36
Average	27	45
Grand average	..	36

that there were no fatal cases of diaphragmatic paralysis in children more than 8 years of age. In Series I, Case 3, the child was 10 years old, the other three being 3, 5 and 7, respectively. In Series II, Case 4, the child was 13 years old, the other three being 4, 4 and 7 years, respectively. We have had no adult cases since the time of these statistics. The average time of discharge, however, from the Willard Parker Hospital is three weeks, so it is perfectly possible that these cases might be very vastly increased in number, as a diagnosis of bronchopneumonia or lobar pneumonia is frequently made in these cases by the outside practitioner.

1. A toxon is a toxin in which the toxophore group has diminished toxicity.

Case 2, in Series II, is interesting in that the paralysis lasted eighty hours, or forty-four hours longer than the average.

Therefore, it is evident that after the first two weeks, when palatine paralysis usually starts, no serious paralysis need be feared before the fifth week. It is at this time, and still more frequently in the sixth and seventh weeks, that the generalized form of paralysis is liable to develop, including paralysis of the diaphragm.

DIAGNOSIS AND SYMPTOMS PRIOR TO PARALYSIS

Both limbs as a rule are drawn up; both thighs are flexed and pressed against the abdomen. Respiration is carried on by the voluntary upraising of the shoulders for each respiration, and each effort is accompanied by the contractions of the intercostal muscles. The entire breathing is intercostal in character, and is markedly dyspneic. There is also a well defined contraction of the diaphragm, and a tendency to scaphoid abdomen. As a rule, diaphragmatic paralysis is preceded by vomiting, tachycardia, dyspnea, and a weak, irregular, compressible pulse. The patient is very restless, there is usually a dry cough (palatine paralysis), and he complains of being unable to swallow (involvement of esophagus); but the mind is generally clear, and the

TABLE 3.—SYMPTOMS PRIOR TO PARALYSIS*

	Number of Cases
Vomiting and regurgitation	6
Dyspnea	5
Tachycardia	5
Abdominal pain	5
Cyanosis	4
Dysphagia	4
Coughing	3
Restlessness	2
Burning in throat	1

* The most common symptoms are vomiting, dyspnea, tachycardia and abdominal pain.

expression is not an anxious one. The face is pale, and sometimes cyanotic, and frequently there are attacks of acute epigastric abdominal pain.

TREATMENT

It is our belief, and this is justified by the cases reported, that there is no active treatment possible by means of drugs when diaphragmatic paralysis ensues. There have been various drugs tried, among them strychnin, atropin, epinephrin and caffein, but with no encouraging results. Necessarily one has to employ some drug to ease the parent's mind, and for this purpose strychnin is advised. Massage and electricity are mentioned, only to be discarded, as they have no direct curative action on the nerves. We have had a 100 per cent. mortality in our series, and this percentage is corroborated by the few observers who have seen similar cases. In this connection it is of interest to cite a case reported by Dr. W. McKim Marriott at the 1920 meeting of the American Pediatric Society:

The patient was a girl, 10 years of age, who had suffered a severe attack of diphtheria six weeks previously. She developed paralysis of the palate, ocular muscles, legs, back and neck muscles, and partial paralysis of the arms. Ultimately the diaphragm became involved, so that it failed to move at all during inspiration. The thoracic respirations were at first very active; later the intercostal muscles became involved, and the child became cyanotic and semicomatose. The child was obviously dying from suffocation, and it was thought that, if the respirations could be maintained for a sufficient period of time to allow for restoration of function of the respiratory muscles, recovery would be possible. Artificial

respiration was given by means of the Erlanger-Gesell air current interrupter, connected with a nitrous oxid mask. The child failed to cooperate at first, but later it was possible to get her to open the glottis at the right time, so that air could be forced into the lungs at the regular rate. The effect was immediate. The cyanosis was relieved, and after a period of about ten minutes of artificial respiration the child fell asleep, and the mask was removed. Cyanosis slowly developed and was again relieved by a period of artificial respiration. This was kept up more or less continuously for five days, at the end of which time the function of the respiratory muscles began to return, and the child was able to breathe without the aid of the apparatus. She made a complete recovery and is now in perfectly good health.

It is quite obvious that in a large hospital practice, and perhaps in private practice, this method would be difficult to apply. If one could employ this method of artificial respiration by using a pulmotor, a Meltzer pharyngeal insufflation apparatus, or such an apparatus as described by Marriott, it is possible that in special cases life *might* be prolonged. Judging from the length of time required in the regeneration of the nerves in other paralyses, notably the palatine type, which generally takes from four to six weeks, it is not our opinion that the phrenic nerve usually regenerates in the time stated. To quote Church and Peterson:

> The course of a neuritis depends upon its cause and the amount of damage done the axis cylinders of the nerve. The general tendency is to restoration of healthy function, as soon as the cause is removed. A slight neuritis may pass away within two or three weeks, but if the lesion has resulted in degeneration of the nerve, months may be required for the regenerative process.

However, if one case has recovered by means of artificial respiration, it is certainly indicated as a last resort. We should again like to emphasize the futility of antitoxin administration after the third day of the disease and, in this connection, advocate giving a sufficient amount of antitoxin intravenously, as soon as the case comes under observation. In addition absolute rest, flat on the back in bed, should be insisted on for a period of six weeks in these cases of late administration of antitoxin.

Incidentally, it is well to remember that paralysis of the diaphragm never occurs alone, but accompanies a generalized multiple neuritis which involves many parts of the body.

PROGNOSIS

In the series of cases here reported, the mortality was 100 per cent, and we have no reason to believe that in true bilateral diaphragmatic paralysis the percentage would be any lower in other series of cases, unless artificial respiration was employed. Even then the cardiac involvement, which usually accompanies the paralysis, might prove too much for the patient. To quote Marriott in a personal communication:

> I would not expect a high percentage of recoveries, chiefly on account of the cardiac involvement which is usually present, and which is certainly not benefited by the pressure changes occurring in the chest.

In other words, ordinarily the prognosis is as hopeless as it can be. It leads one to give a guarded prognosis in every case of diphtheria where antitoxin has been administered late, or after the third day, or in insufficient amounts early. It is well to remember that these paralyses do not appear until the fifth or sixth week, and that there is absolutely no way of prognosticating their appearance.

REPORT OF CASES

SERIES I

Case 1.—*History.*—G. P., a girl, aged 7 years, admitted to the hospital, Oct. 30, 1920, had been sick for three days. On admission, she was given 9,000 units of antitoxin intravenously. Her condition was considered bad. On both tonsils there was a sloughing membrane, which extended over the soft palate; the cervical glands were moderately enlarged, and there was a slight nasal discharge.

Course of Disease.—November 7, there was noted bradycardia with marked myocarditic dilatation; November 9, cardiac arrhythmia with many extrasystoles; November 11, marked gallop rhythm; November 20; epistaxis; December 6, tachycardia of the arrhythmic type with extrasystoles; December 9, esophageal paralysis, the respirations becoming entirely thoracic at 10 p. m., with marked retraction of the abdomen at the diaphragm. The patient died at 6:20 a. m., December 10. During the course of the disease there had been frequent vomiting, which had little relation to the intake of food, or to its constituents. Just previous to paralysis, she complained of a burning feeling in the throat, and was very restless and fretful. There was difficult swallowing, and vomiting and dyspnea. Her condition was very poor.

The onset of the paralysis occurred forty-four days after the onset of diphtheria. Its duration was eight hours and twenty minutes. The temperature was normal until three days before death, when it ranged from 101.4 F. to 100 F. The pulse for three days prior to death was from 130 to 110. Respiration averaged 30. During paralysis, digitalis, strychnin, rhubarb and soda, and cascara were administered.

Case 2.—*History.*—I. G., a girl, aged 3 years, admitted to the hospital, June 28, 1919, had been sick for fourteeen days. On admission she was given 19,000 units of antitoxin, in four doses. There was no exudate in the throat, but there was a paralysis of the right side of the palate and a nasal voice. Gallop rhythm was present, and there was the usual regurgitation of food through the nostrils associated with a palatine paralysis.

Course of Disease.—June 29, there was noted gallop rhythm and puffiness of both feet. This continued until July 11, when a multiple neuritis followed. July 13, diaphragmatic paralysis developed, and the patient died, July 15, at noon. During the course of the disease, from July 13 to death, there was difficult swallowing, resulting in severe paroxysms of coughing, with complete loss of breath, cyanosis, convulsive breathing, and marked air hunger. Restlessness was marked. Vomiting occurred at times.

Onset of paralysis occurred about thirty-two days after the onset of the disease. The duration of the paralysis was forty-eight hours (?). The temperature rose to 101 F. two days before death. The pulse registered from 130 to 150, respiration from 24 to 36.

SERIES II

Case 1.—H. McM., a girl, aged 4 years, admitted to the hospital, May 28, 1917, had been ill for twelve days. Eight days before admission, or four days after the onset of the disease, she had received 2,000 units of antitoxin intramuscularly, given by a private physician. There were no signs of an exudate. The patient was considered gravely ill. Her pulse was from 110 to 130, and she had a subnormal temperature.

Course of Disease.—May 28 to June 8, the condition was not improved; June 9, a slight palatine paralysis was noted; June 12-19, the patient was apparently convalescing. June 21, there was complete diaphragmatic paralysis; with temperature, 103 F.; pulse, 108, and respiration, 44. The patient died June 22, at 8:45 p. m.

The symptoms prior to paralysis were difficult swallowing, labored breathing, and pain in the abdomen. The onset of paralysis occurred thirty-eight days after onset of diphtheria. Its duration was twenty-eight hours.

Case 2.—*History.*—L. K., a boy, aged 4 years, admitted to the hospital, July 31, 1915, had been sick for three days. On admission he was given 15,000 units of antitoxin intravenously. The prognosis was considered doubtful. There was an exudate on both tonsils and uvula, a marked nasal discharge and bilateral cervical adenitis.

Course of Disease.—August 1, the temperature was 100.4 F.; the pulse, 128, the respiration 36. August 12, palatine paralysis was noted, with marked regurgitation; August 16, irregular pulse; September 6, dyspnea, labored respirations, pain in the abdomen, and complete diaphragmatic paralysis. The patient died, September 10, at 1 a. m.

Onset of paralysis occurred forty-two days after the onset of diphtheria. Its duration was eighty hours. The temperature was 98; respiration, 48; pulse, from 120 to 140.

SUMMARY

1. The cases enumerated show extensive initial exudate covering both tonsils, the uvula, and the soft palate, and a nasal discharge; and in all but one case (of which the exact facts are unknown) antitoxin was not given until *after the third day* of the disease.

2. The average time of onset of paralysis was thirty-nine and a half days.

3. The duration of paralysis averaged thirty-six hours.

4. The prognosis is 100 per cent. fatal.

5. Of the eight patients, six were girls, two were boys.

6. As regards treatment, on account of the development of the paralysis, due to the late administration of antitoxin, we wish to emphasize the importance of absolute rest for the patient for a period of at least six weeks, for the purpose of possibly obviating paralysis.

In these two series of cases, we found no treatment effectual; but, in view of Dr. Marriott's report, we intend trying a similar method of artificial respiration in our next series of cases, as this at the present time is the only form of treatment which offers any hope for recovery.

134 East Seventy-Sixth Street—Willard Parker Hospital.

ABSTRACT OF DISCUSSION

DR. ROBERT J. WILSON, New York: Statistics are reliable as far as they go, but these are not the ones on which to base conclusions because they come from a service which is notably a very bad one. They were hopeless cases before they came to the hospital. They represent the dregs of the worst kind of bad practice in New York City. Therefore, such statistics must necessarily give a more or less wrong impression. Had the physicians in New York been doing their duty, there would not have been a chance to report these cases. All of this paralysis is preventable. It is the duty of the American Medical Association and this section to see to it that the people become educated, as far as that can possibly be done, to a sufficiently intelligent degree to know when to call in a physician, and then that the physician be intelligent enough to know when to give antitoxin and not wait for a Schick test or a throat culture.

DR. HENRY W. BERG, New York: These cases are important because they are uniformly fatal at present. Only bilateral diaphragmatic paralysis is fatal; and if you can learn to recognize diaphragmatic paralysis when it is unilateral, before both phrenic nerves are involved, you may be fortunate enough to have your patient get well by therapy applied to the first side soon enough. A large number of unilateral palsies occur in diphtheria, but are not recognized because the other side is doing the work. How are you going to recognize unilateral phrenic nerve palsy? First, Litten's sign is absent on the paralyzed side; and, secondly, there is no abdominal respiration on the paralyzed side; thirdly, the respiratory movements in the intercostal spaces are obviously exaggerated on the diseased side; and fourthly, the fluoroscopic picture shows an immobile diaphragm on the paralyzed side. In addition, the muscles supplied by the glossopharyngeal, even the hypoglossal nerves, are paralyzed and the result is that there is an inability to swallow, and a great deal of material falls down into the bronchi, and secondary bronchitis occurs. The patient being unable to cough, the air cells rapidly fill up; and in bilateral cases the patient drowns in his own mucus in the early stages of the disease, or in the late stages develops bronchopneumonia of a paralytic character. A great deal was said as to artificial respiration either by mechanical means or by the Sylvester method. There is absolutely nothing to be expected from that. This disease does not kill by lack of air; it kills by drowning. The cough is peculiar. It is an incomplete or paralytic cough. You can hear the mucus rising in the air cells from hour to hour. Use strychnin injections in the sixth intercostal space, the galvanic current over the sternocleidomastoid muscle. The strychnin is given for the purpose of stimulating the respiratory center and thus the long respiratory nerve of Bell, in order to bring out the adjuvant respiratory function of the intercostal muscles.

DR. BORDEN S. VEEDER, St. Louis: In one thing I will agree with the previous speaker, and that is that these cases are far more frequent than is generally recognized. I think that if these postdiphtheritic paralysis cases are examined very closely, some degree of phrenic paralysis will often be found which is generally overlooked. On the other hand, I would disagree with him in the statement that these cases are hopelessly fatal. I saw the case which Dr. Mixsell described and which Dr. Marriott treated with the Erlanger apparatus, and I have also seen two other cases of postdiphtheritic paralysis involving the phrenic nerve in which the patients recovered; so I do not feel that it is a hopeless proposition.

DR. EDWIN H. PLACE, Boston: When there is paralysis of the pharyngeal muscles, which so frequently occurs with paralysis of the diaphragm, the patient may have a cough with inability to raise secretions. If the patient sits up, the secretions rattle back and forth in the throat and tend to gravitate into the lungs and cause hypostatic pneumonia. This cough can be entirely relieved by posture, elevating the foot of the bed so that this mucus can flow out. Unfortunately, however, this is a bad position for the diaphragm. The diaphragm should be fixed so that the other respiratory muscles may allow some air to enter. I agree with Dr. Berg about the distention of the diaphragm to keep it at the lowest point.

DR. CHARLES A. FABER, Milwaukee: The New York men have outlined a very good treatment for postdiphtheritic paralysis. A child, 9 years old, was injected with antitoxin. On the third day I found the child up playing with its toys. The mother said the doctor did not forbid that. Four days later when I called again there was crape on the door. The child, while playing, fell over dead. My advice is that very little drugging should be done in any treatment for diphtheria after antitoxin has been administered, but rest in bed, preferably a dark room and light diet are indicated.

DR. E. C. FLEISCHNER, San Francisco: I wish to call attention to three or four simple procedures which can easily be carried out in the convalescence of all diphtheritics and which may help to forestall these cases; namely, routine examination of the muscles of accommodation, the condition of the knee jerks and the palatal reflex. If those things are carried out daily, some of the postdiphtheritic paralysis may be avoided by proper rest over a sufficient length of time.

DR. HAROLD R. MIXSELL, New York: I want to emphasize again the early administration of antitoxin, especially by the intravenous route, before the third day of the disease. It has been my habit, and I know that many New York men do the same, to make cultures in all cases of suspicious throat, whether or not they are clinical diphtheria, and if there is any reasonable doubt, antitoxin is given before the culture is completed. Dr. Berg brought up the subject of the injection of strychnin. I fail to see any use of this procedure. No good results can follow the injection of strychnin into the diaphragm or elsewhere. I agree with Dr. Veeder that artificial respiration in some form should be used. If in the past there have been reported recovered cases, this should be sufficient to justify its use. As far as we know now this is the only way of possibly saving life. I agree with Dr. Faber in regard to the importance of rest, particularly after the late administration of antitoxin. This we hope may prevent these paralyses. At Willard Parker

we like to keep patients in bed for six weeks after the late third day administration of antitoxin. Dr. Fleischner's suggestions are most important. We make daily examinations on those points in all of our cases.

THE CONTROL OF COMMUNICABLE DISEASES *

ALLAN J. McLAUGHLIN, M.D.
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WASHINGTON, D. C.

I propose to consider the control of communicable diseases with special reference to the adequacy of our control, and the probable reasons why in certain diseases our control is inadequate.

There are three kinds of official health departments: federal, state and local. The official control of communicable diseases comes within the province of these three distinct health jurisdictions and is one of the fundamental duties of all health officers, federal, state and local. To secure adequate control, it is necessary to have a partnership of these three jurisdictions, with a clear understanding in the firm of the powers, functions and duties of each member.

Powers, functions and duties may be considered under the three heads: (1) police; (2) investigative and demonstrative, and (3) coordinative.

POLICE POWER

Police power has been given very sparingly to federal health authorities and delegated by states in large measure to local authorities, because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, namely, the local board of health.

It is clear that police power not specificially given by the constitution to federal agencies is reserved to the states or to the people. There is also police power, implied but not expressed in the constitution, which is inherent in the federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by state police power, and its exercise cannot be an usurpation of state authority.

Congress has repeatedly given police power by statute to federal agencies to cover such conditions, but has always maintained the attitude that in health matters the state and local agencies should be utilized to the limit of their legitimate fields.

The quarantine law of 1890 gives very definite powers to the federal health authorities to prevent the introduction of cholera, yellow fever, smallpox and plague, or to prevent the spread of these diseases from one state to another, without reference to utilization of state machinery, and it provides for the promulgation of rules and regulations, with penalties for infraction.

The quarantine law of 1893, which includes all communicable diseases, provides that the Public Health Service shall cooperate with and aid state and municipal health boards in the execution and enforcement of state laws and regulations and of federal laws and regulations. It provides that where no state or local regulations exist or where these are, insufficient, the Secretary of the Treasury shall make such additional rules and regulations as are necessary to prevent interstate spread of such diseases. It provides, further, that the rules and regulations promulgated by the secretary shall be enforced by state and local authorities where they will undertake to execute and enforce them; but if state or municipal health authorities fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as in his judgment shall be necessary.

In order to carry out this policy of utilizing state and local health machinery in the prevention of the spread of disease, Congress has repeatedly appropriated large sums "to aid state or local boards or otherwise in preventing and suppressing communicable disease." Without invoking any of the police powers of the federal government, entirely satisfactory results can be secured by utilizing state and local police power, coordinated by the federal Public Health Service.

As the state health machinery becomes more highly organized and perfected, the need of exercise of federal police power will diminish, and the need of federal coordinative activity will increase.

The prevention of the spread of epidemic disease from one state to another may be handled in one of two ways: (1) by the present system of awaiting the outbreak of an epidemic and then attempting its suppression, or (2) by maintaining such a close check on disease prevalence that prompt and early information of undue prevalence is at once available, and that suppressive measures may be taken before actual epidemic proportions are reached.

It is manifest, therefore, that the policy of the United States Public Health Service should be to develop state health departments, especially those divisions in a state health department whose effective operation in the interest of the state itself tends to prevent the spread of disease from one state to another.

The most effective means of preventing an interstate spread of disease at the disposal of the federal government today lies in the development and utilization, in every state department of health, of strong divisions for control of communicable diseases, of water and of sewage.

INVESTIGATIVE AND DEMONSTRATIVE FUNCTIONS

The investigative function of the Public Health Service has no limit other than that set by the amount of money which may be appropriated by Congress.

The act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution, directly or indirectly, of the navigable streams and lakes of the United States. Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provides for the publication of information for the use of the public. Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish, to the health officer in the field, diagnostic, prophylactic and curative weapons for the suppression of communicable disease. The economic advantage of doing this in one hygienic laboratory rather than in forty-eight laboratories is at once apparent.

The work done under the investigative authority of the act of 1912, especially the field work, is nearly always demonstrative, and it can be utilized as public health demonstrations of all kinds.

* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

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In addition, Congress has given specific authority for demonstrations in rural sanitation, contingent upon partial support by state or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here again the United States Public Health Service is limited only by the amount of money appropriated by Congress.

COORDINATIVE FUNCTIONS

In achieving national success against any public health problem, the coordinative function of the Public Health Service is perhaps the most important function which the service exercises. Some federal coordinating agency is necessary in order to secure a synchronous attack on any disease with uniformity of method over the entire area of the United States. To secure the maximum of improvement in our national health, we must have nation-wide programs for each problem with which health officers are confronted.

The example of our venereal disease campaign serves to show what may be accomplished in other fields by the same methods.

The coordinative function of the federal Public Health Service is but the national demonstration of the function exercised by state and local health authorities over smaller areas.

In other words, public health organization—federal, state, and local—should have this relationship:

RELATIONSHIP OF PUBLIC HEALTH ORGANIZATION

Coordinating Authority	Working Units to be Coordinated
United States Public Health Service.	State departments of health.
State department of health.	Local health departments.
Local health departments.	Individual citizens.

The coordinating authority furnishes the program in order to secure teamwork, and endeavors to have this program carried out by all the units in the area within its jurisdiction.

Outside of the limited and definite police power given by Congress to the federal Public Health Service under the constitution, all other police power is inherent in the state, except in cases in which it has been delegated specifically by the state by charter or other legislative act to the local authorities. Under this broad power as defined by the constitution, the powers of the individual states within their own borders for regulatory, investigative or coordinative health work are limited only by the will of the people as expressed by the state legislature. As indicated above, this power has been delegated by the state legislatures in large measure to local health jurisdictions.

The coordinative function of the state is entirely independent of police power, and it resembles the federal coordinative function in being the most valuable function which the state exercises. Many states have this coordinative function highly developed, securing uniform concerted action by the local health units on the problems of communicable diseases.

The large police powers delegated to municipalities and other local health units often obscure the even more valuable coordinative function which the successful local health officer must employ. This means the securing of concerted action or "team work" by the individual citizens.

The foregoing outline of official powers, functions and duties would seem to indicate that there is ample legal authority. Experienced health officers nearly all agree that, generally speaking, there is ample legal authority if properly applied and supported by enlightened public opinion.

Police power for certain definite federal functions, such as prevention of the introduction or spread of communicable diseases, is adequate; and while police power has been given freely by states to local communities, the states retain tremendous powers for the legal prevention of the spread of disease. The tendency to overaccentuate compulsory measures is disappearing, and there is a growing tendency among health officers to secure results by education of individuals and communities.

This is logical and sensible, since a strong law may be nullified by an adverse public opinion, while substantial results are frequently secured with a weak law or without law because of the support of public opinion, expressed as respect for a fine health organization.

While it is true that the prevention of the spread of communicable disease concerns all three official health organizations, it is nevertheless, in the last analysis, a local problem.

It is the local health officer who comes into direct contact with the individual cases of the disease, and who should apply the measures to prevent its spread to other persons—in fact, a good local health organization, functioning effectively, reduces the necessity for state action to observation, keeping in touch, and lending moral support.

Adequacy of control demands effective action locally, and no activity at the state capital or at Washington can compensate for failure to apply prompt, effective measures on the spot. If the local organization is defective or nonexistent, state or federal aid may supply the temporary organization; but this should be considered as a temporary makeshift and should be used to demonstrate the necessity for a proper local organization. For these reasons, and because of the time limit on this paper, I will consider only local machinery.

Given the proper legal authority, the fundamental needs of communicable disease control come under the heads of sufficient knowledge and proper local health organization.

Sufficient knowledge of the etiology and the modes of transmission of disease is essential to enable the formulation of effective suppressive measures. Sufficient knowledge of the biologic characteristics of a causative organism makes it possible to furnish the health officers with serums, viruses or prophylactic products for combating the disease.

If sufficient knowledge is available to furnish biologic weapons, and to make possible the formulation of effective suppressive measures, there remains only one fundamental need: proper local health organization. This means the machinery, official and unofficial, for prompt notification, at the earliest possible moment, of cases of communicable disease, and the machinery, official and unofficial, for putting into prompt effect the best suppressive measures known to science.

In considering the adequacy of control of the individual diseases, these divide themselves naturally into groups.

There is a group of diseases the prevention of which constitutes the major purpose of our federal quarantine service. They are more or less exotic, and inspire terror in the lay mind out of all proportion to their

danger. In this group are Asiastic cholera, plague, yellow fever, typhus fever and leprosy.

We have sufficient knowledge to control all of these diseases, and the terror they inspire insures the support of public opinion and a feverish activity on the part of lay officials to effect their suppression. This does not mean that there is no need for further research in these diseases, but simply means that our present knowledge, backed by public opinion, makes possible what may be termed adequate control.

With the diseases which are endemic in the United States, there is quite a different story. They are of common, everyday occurrence. They inspire no terror, and public opinion is apathetic toward measures for their suppression. In some of these diseases, smallpox, typhoid and malaria, for example, we have sufficient knowledge now to effect their eradication. We have specific or biologic weapons with which to fight them, but we lack the interest and support of the individual citizen, who does not react to their presence as he would to cases of Asiatic cholera or yellow fever.

In the whole group of so-called respiratory or "sputum-borne" diseases it may be said that we lack the knowledge of the cause or the modes of transmission which would enable us to control these diseases. This is especially true of influenza and poliomyelitis. In these diseases we need specific biologic products for diagnosis, prophylaxis and treatment. We need also some practical index of susceptibility, such as the Schick test furnishes for diphtheria.

In the group of so-called communicable diseases of childhood, chiefly diphtheria, scarlet fever, measles and whooping cough, diphtheria is the only one for which we have biologic weapons which should be sufficient for its eradication. In the others, we lack definite knowledge of the cause and modes of transmission, and our practical measures for their suppression are, therefore, limited to instructions given on general principles.

Inadequate control of the communicable diseases of childhood is accentuated by certain basic defects in local health organizations. These are, chiefly, failure to coordinate and utilize unofficial volunteer agencies, and failure to develop a community spirit and to secure the hearty support of the individual citizen.

Unofficial agencies which should be the most potent auxiliaries of the health department are operating in many instances entirely independently of the officials, and often without proper knowledge of, or consideration for, their sister volunteer agencies.

The failure to secure a community spirit is related to the failure to utilize properly the unofficial agencies. If proper coordination of all volunteer auxiliaries is secured, the development of a strong community spirit is not difficult.

Once the community spirit is developed by means of real health centers, the securing of support of a large majority of the individual citizens is within reach. We have been clamoring for better reporting by physicians, and this is a justifiable demand; but even if physicians reported 100 per cent of cases seen, we should still be far from adequate control in these diseases.

A large percentage of the cases of communicable diseases of childhood are not seen by physicians, or seen so late that most of the damage is done. School inspection and the cooperation of intelligent, trained teachers will augment the number of cases brought under early control, but the great need is development of sincere public spirited support by the parents themselves.

This can never be achieved by exhibition of police power, but education and an appeal to both civic pride and individual self-respect will be ultimately successful in getting parents to report cases voluntarily.

The biggest step forward will be achieved when the parents voluntarily will isolate children and report, pending diagnosis, when the symptoms are indefinite but present a sudden deviation from normal health.

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ABSTRACT OF DISCUSSION

DR. B. FRANKLIN ROYER, Philadelphia: When you use force or go far beyond the public point of view in a community, you arouse too much opposition to succeed, except with the most frightful types of epidemics. Education must precede law enforcement. In communities in which general education is widespread—and, probably, that is best seen in New England where each town has kept zealously its autonomous organization and carries on its educational program thoroughly—you get the best coordination of effort. In the states into which Europe pours thousands, you have a very different problem from that of New England, and a different program is required. The modern health center and the activity of the Red Cross in the extension of its peace time program will do more than other influences, perhaps, to promote campaigns of public health education both in cities and in rural districts. The well directed public health nurse will probably do more effective work than will health officers or those actively engaged in administrative work. Health authorities must act as advisers and guides to those engaged in this new scheme of public health education, first, in order that the nurses may be trained properly, secondly, that the Red Cross agency may have its function properly coordinated with official agencies, and thirdly, so that their lessons may be carried out to the best advantage of the community and without friction.

In communities where state and county supervision of teachers is well coordinated, much can be done in organizing teachers in carrying on the simpler preventive methods of medicine. The health center may do a great deal to prevent sickness, by doing a little curative medicine; but first, last and most of the time its work should be educational in character. Our hope lies largely in public health education, beginning at as early a stage in life as possible.

DR. R. S. YARROS, Chicago: In the venereal disease campaign carried on by the federal government, a remarkable piece of work has been accomplished. The U. S. Public Health Service cooperated not only with the state departments of health, but also with all well established private agencies interested in this work, with epoch-making results. The federal aid to the states not only helped start the work in many states, but also stimulated and further standardized the various phases of such work. It also served, in a way, to create wholesome competition between the states as to number of clinics, kind of clinics, and educational and law enforcement work done. As each state officer had to report monthly to the venereal disease division of the Public Health Service, he was naturally, anxious to come up to the highest standard. Having learned the value of close cooperation between the federal, state and private agencies, why not apply it to other phases of public health work?

DR. A. W. COLCORD, Clareton, Pa.: For the last twelve years I have served as president of the board of health, in a rather large industrial community, including several thousand foreigners. We are grappling with this question of the education of the people of our community to help stop communicable diseases, and to improve the health of the community in general. We have Americanization classes in which we are teaching these foreigners the English language. Next year we shall begin through the school board to send trained workers into the homes to educate mothers, first in English, and then in personal hygiene, home economics and home health. We have been for three years conducting a sanitary survey of these homes through a nurse. Every time she finds something wrong in a home she tries to correct it. Then she is getting the mothers together and health classes are organized. They get weekly talks followed by the nurse going right

into their homes to see whether they are profiting by these talks. The mothers are educated about baby care and feeding. We have a clinic in each school where all subnormal children are fed. A specialist examines those children, and every physician in the town participates. We are organizing the physicians in the town to promote this health program. It can be done only by the concerted action of the physicians, the schools, the local boards of health, the state board of health and the federal government, with the cooperation of the managers of the mills. You cannot stop contagious disease with a law, a health officer and a placard. You must secure the cooperation of the people by education, persuasion, organization.

DR. J. W. LOUGHLIN, Damariscotta, Maine: In many of our own American homes we ought to teach the people how to take care of a contagious disease. There should be more cooperation between the state departments of health and the state board of education, so that the state and district health officers can go into the high schools. I don't believe in beginning with the very small children, but begin with the high school children, and teach them how the contagious diseases are contracted and how they are transmitted. Every state department of health should educate the people about spray-borne diseases and not confine itself to contagious diseases. It is in the small towns in the country that we must create interest. Once we get a health center started and people interested in their own health, it is only a short time before the local health officer is at work; the state department is not so frequently called on, the people are cooperating and better results are obtained.

DR. ALLAN J. MCLAUGHLIN, Washington, D. C.: I want to bring out two points which seem to have been emphasized in the discussion. One was our failure to utilize all the methods and knowledge which we now possess, and, second, the lack of certain instruments which explains the inadequacy of our control.

IN THE TIME OF HENRY JACOB BIGELOW *

WILLIAM J. MAYO, M.D.
ROCHESTER, MINN.

To the members of the Boston Surgical Society, and to others in the audience who have grown up in the atmosphere created by Dr. Henry Jacob Bigelow, a man known to the older of you personally and to the younger of you by tradition, any attempt to portray new facts concerning his life and work would seem little short of presumptuous. But since Dr. Henry Jacob Bigelow was one of the great Americans whose work is of paramount importance and interest to the American medical profession, and since his achievements are a precious heritage of all Americans, it may be fitting at this time briefly to review certain data which without doubt greatly influenced the development of his career.

The Reverend Jacob Bigelow was the founder of the family in Massachusetts. Jacob Bigelow, M.D., LL.D., the second Bigelow, was born in 1787. He graduated from Harvard, taught in the Harvard Medical School, and later acquired renown as Rumford professor in the Department of Science, Literature and Art, of Harvard University. He was the author of many valuable papers on scientific subjects, and he held a high place in the American science of his day. Henry Jacob Bigelow, the son of Dr. Jacob Bigelow and the talented Mary Scollay Bigelow, was born, March 11, 1818. He was graduated from Harvard in 1833. At that time there were ten professors at Harvard, including the president, and 230 students.

* Read before the Boston Surgical Society, Medalist Meeting, June 6, 1921.

As a boy, Henry evinced an extraordinary interest in mechanics. He was wonderfully skilled in the use of all kinds of mechanical implements, as well as in the art of making them. He was a leader in the younger social set of Boston. During his freshman year in college he organized and headed a student revolution. In reproving him for this serious offense, his father said that he himself had committed such acts in his youth, and later repented of his folly. Henry replied that his reasons were quite the same; that he also wished to learn by actual experience the folly of his ways.

After Henry had graduated from Harvard he began to study medicine with his father as preceptor, and from the first declared his intention of becoming a surgeon. He was house surgeon in the Massachusetts General Hospital from 1838 to 1839, and received his medical degree in 1841. At this time Dr. Oliver Wendell Holmes was teaching anatomy and physiology in the Medical School in Hanover, and young Dr. Bigelow went there to attend his lectures. Dr. Holmes was not only a literary genius, an anatomist and a physiologist of the highest order, but was greatly interested in clinical medicine; he was the first to point out that puerperal fever was a form of surgical sepsis.

FRANCE, THE MEDICAL CENTER

In 1842, Dr. Bigelow went to Paris, at that time the medical center of the world. To children is given the power of readily acquiring languages; later, mathematics is acquired with the same readiness; but reasoning from cause to effect is a development of adolescence and early manhood. Critical observers believe that most men have unconsciously laid the foundation for future careers at a period of life well under 30 years. Dr. Bigelow went to Paris at the most impressionable period of his scientific life.

John Hunter, in the latter part of the eighteenth century (1728 to 1793), was the first to study pathologic anatomy as a whole. Before Hunter's time, normal anatomy had reached a relatively high level of perfection by dissections on cadavers; but pathologic anatomy, while it had been highly developed in relation to certain organs or parts of the body, had by no means kept pace with progress in the study of normal anatomy. As the result of Hunter's work, England became the center of the medical sciences, a position which she held well into the nineteenth century. One needs only to view the thirteen thousand pathologic specimens in the Hunterian Museum of the Royal College of Surgeons in England, put up, labeled, and numbered in black by Hunter's own hands, to realize just what this man accomplished in the development of medical science. He was aided only by the eye and by inferior types of microscopes.

Gerard Van Swieten, while not comparable with Hunter in any way, in about the same period (1700 to 1772), under Queen Maria Theresa, was laying the foundation in medicine and pathology in the great medical school in Vienna, a foundation which gave vitality to Vienna as a medical center for more than a hundred years.

The teachings of Hunter were eagerly seized by the French, who, with characteristic Latin ingenuity, at once began to study methods whereby practical use might be made of pathologic knowledge in the cure of disease. France quickly forged to the front in the development of surgical anatomy, technic and operative surgery, and the leadership in medicine passed from

England to France. The microscope had been greatly improved in France, thus making it possible to study in detail minute histology and pathology.

Dr. Bigelow was caught, at the most plastic period of his life, in the high tide of this flood of new knowledge. Was it any wonder that, with his creative genius for invention and mechanics, he should become so nearly French, and should flower under the guiding genius of the French people during this great period in the history of medicine?

Von Langenbeck, father of modern German surgery, was a student in France about the same time, and he carried to Germany the principles of applied art in surgery which the fundamental work of Hunter had made possible.

In 1847, Philadelphia was enriched by the coming of Mütter, who brought to America, from the great schools of Paris, a knowledge of orthopedic surgery.

Prof. David W. Cheever, who knew Dr. Bigelow well, thus evaluated the French influence on Bigelow's work:

> As a surgeon, in method Bigelow was a pupil of the French school. To ingenuity he added dexterity, and to dexterity grace. He was alert, cool, practiced; whenever he appeared on the operating arena it was as a central figure. Precise in touch, supple in movement, he added the polish of the finished artist to the nonchalance of the experienced operator.

Dr. Bigelow, however, did not become quite French. One is impressed with the fact that he journeyed from Paris to England, a most disagreeable trip, once a week to see James Paget. Paget was the great philosopher of surgical science of his day. He had a rare fund of knowledge gained from others, and he had great wisdom combined with intuition, and was able to correlate knowledge with experience. I remember well that when I was a schoolboy my father, in mapping out my future medical training, gave me Paget's book on surgical pathology. This book is one of the most fascinating I have ever read; and although I read it more than forty years ago, certain passages still stand out vividly in my mind. Paget's generalizations on pathology have never been excelled and seldom equaled. For example, in writing on atrophy and hypertrophy, he says that continuous pressure produces atrophy, like bedsores, and intermittent pressure produces hypertrophy, like corns and callus. His description of the natural deterioration of age as the "calmness of decay" due either to a reduction in quantity, as in the withering of age, or to a reduction in quality, as in the obesity of age, is classic. Again, he speaks of the senile processes as age replacements of vital tissues by the introduction of earthy substances, atheroma, arteriosclerosis, and so forth, "as though man were becoming more earthy in preparation for the grave." The inspiration to Dr. Bigelow of seeing in Paget the Anglo-Saxon characteristics of soundness and sanity, with breadth of view, may be readily conjectured. Paget made generalizations that are as much a characteristic of the Anglo-Saxon mind as keen analyses and technical skill are characteristics of the Latin mind.

In Dr. Bigelow's training, therefore, the highest product of the French and English schools is exemplified. The form and method were from the French, but the principles were from Hunter and Paget, and the English school. As one reviews even sketchily the education of Bigelow, it seems difficult to improve or to equal it at the present time. Today the premedical student is overtaught. An attempt is made to give him a memory smattering of many facts. He is required to take cultural training of little value for his future work, such as higher mathematics more calculated for the training of an engineer than a physician. Two years of time at least are lost in premedical unimportant educational drill, too often under mediocre teachers and cloistered professors.

The Oriental races mature at an early age. They excel in memory tests and reach the height of mental growth well under 40, with exceptions to prove the rule. They are brilliant medical students, but often poor practitioners. The Anglo-Saxon develops later, but he has a capacity for reasoning and for action based on reason, which does not falter with age. Where does history reveal the same number of men of other origin who were great men at 70 and 80 and even 90, with equal power of correlating and assimilating new facts?

Dr. Bigelow was not overtrained. He was allowed to think for himself in order that he might gain in wisdom that which he lacked in knowledge. Dr. Bigelow obtained his medical degree before he was 25. The average graduate in medicine today is over 27, and if he takes a three-year fellowship he is over 30 before he begins his work. An investigation of the graduates of medicine in the University of Michigan for a fifteen-year period showed that men graduating under 25 were, on the average, more successful and worth more to their communities than those who graduated over the age of 25.

While Dr. Bigelow was in Paris he had typhoid fever, and on recovering went to Italy to convalesce. He spent several months in Rome, and devoted himself to the art of drawing. The skill he acquired added greatly to his ability as a teacher later, in giving blackboard illustrations to the students.

DR. BIGELOW RETURNS TO BOSTON

Dr. Bigelow returned to Boston in 1844. At that time there were about 150,000 inhabitants in Boston, 162 of whom were physicians. Dr. Bigelow's ambition was boundless, and his self confidence most remarkable. He did not hesitate to express his opinions in the presence of those high in authority, and chafed at attempts to control by authority of position rather than by ability.

Dr. Bigelow was a handsome man with engaging social qualities, and he soon became one of Boston's leading social arbiters. His sartorial expressions were extreme. He startled staid Boston by the extremes of fashions he followed. He originated the light blue coat, the brass buttons, and the radiant embroidered waistcoats. His spirited horses attached to a landaulet were driven by a coachman in livery. These and many other acts contributed to make him a marked man, and only his extraordinary ability enabled him to maintain the unusual standards he established. Yet he always searched for the truth, was always open to suggestion, even though he might dislike his informant. He was interested in general science, and when Louis Agassiz came to New England to study the rocks it was Bigelow who went with him to show him where to find the particular geologic strata for which he was searching.

In 1845, Dr. Bigelow was made president of the Boylston Medical Society, and in 1846 his presidential address, "Fragments of Medical Science and Art," was published. In this address he discussed the value of the inductive method of applying knowledge and the use of the senses, in contradistinction to the numerical method, which, he said, made men of science statis-

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ticians. In 1847, he issued his famous circular announcing the formation of a charitable surgical institute for outpateints only. This created a sensation, but his graceful attitude toward the members of his profession, his ability in organization, and his popularity with his clientele, made the institution a success.

YOUTH WILL BE SERVED

In 1846, when Dr. Bigelow was only 28 years of age, he was made full surgeon in the Massachusetts General Hospital, a position which he held for forty years. In 1849, he was made professor of surgery in Harvard Medical School, a position which he held for thirty-three years. His hospital and teaching positions enabled him to have a hospital service with beds and patients during the active period of his life. Many of the world's great surgeons have had this advantage. Theodor Kocher was professor of surgery at the University of Berne at the age of 31, and held the position until his death, a period of forty-six years. Johann von Mikulicz at the age of 32 was made professor of surgery in a German university, and held this position brilliantly until his too early death in 1905. In obvious contrast to Dr. Bigelow's opportunities were those of W. H. A. Jacobson. Jacobson was assistant surgeon at Guy's Hospital, London, during his active career and did not become a full surgeon until he was 53. He arrived at the summit of his career late. He retired after but five years of full-time service. Jacobson's book on operative surgery was, in its time in my opinion, the greatest work on this subject that had ever been written. His ripe judgment, clear thinking, dignity and brevity of expression made his book a classic. I not only read Jacobson's book, but I absorbed it. He wrote largely concerning other people's work, but the critical acumen, the estimations made of the indications for operation and the type of operation were Jacobson's.

Osler's comment on the man under 40 and the man over 60 caused great merriment and newspaper comment, which has not died out in the intervening years. Osler's philosophy was, in a way, sound. Experience is the great teacher; unfortunately, experience leaves mental scars, and scar tissue contracts. Experience hobbles progress and leads to abandonment of difficult problems; it encourages the initiated to walk on the shady side of the street in the direction of experiences that have been pleasant. Youth without experience attacks the unsolved problems which maturer age with experience avoids, and from the labors of youth comes progress. Youth has dreams and visions, and will not be denied. Sound practices today were only visions the day they were born. The failure of the Germans in their great attack was due to experience. Germany's leaders were old men, most of them over 60; and some of those high in command were over 70. The discipline of German life with its military training limited the initiative of its youth, obstructed the progress of thought and invention, and made of many Germans imitators and exploiters of other people's inventions, unfortunately too often without credit when credit was due, the facts concealed by huge smoke screens of scientific pfennigs.

THE WIT OF SCIENCE

Much of the extraordinary success of Bigelow is expressed in his happy saying, "the wit of science," namely, the application of the special senses, in obtaining knowledge and in acting with wisdom. The wit of science not only expresses but actually reveals the science and art of medicine.

In observing the present method of teaching in the medical schools, it is seen that attempts are made to teach the student a little of everything. Much of the teaching is so complex that the details cannot be carried out. There is a constant tendency to exaggerate the minute at the expense of the obvious. Not long ago I investigated my old general utility bag which I had not seen for twenty years. As I removed the articles from the bag, one by one, articles I had been taught to use, I questioned my staff of assistants with regard to their use. I found that they were familiar with the articles but had little knowledge of their practical application. They had not been taught to handle the common tools of their trade in a manner to make them depend on them, but rather to consider them as something apart, to be used by specialists. In my student days less reliance was placed on the stethoscope, that romantic instrument which is the diagnostic sheet anchor of so many men who do not attend the revelation at the operating table or at postmortem.

On the wall of an operating room in Newcastle-upon-Tyne, a room made famous by Morison and now occupied by one of his able disciples, is a legend for the attention of the students. In large letters is written "Eye," in smaller letters, "Touch," and in very small letters, "Ear." One evening, many years ago, the little folk at my house were having a party. I became very much interested in watching their games. A child was blindfolded and two coins were struck together at a distance of about two feet from his head, in different directions. I was surprised to note that the child was practically unable to tell in which direction the coins had been struck. The explanation for this lies in the development of the special cranial senses. First came the sense of taste that the primitive mouth might recognize food substances. Then came the sense of smell that the primitive mouth might be turned toward food; then the sense of hearing for the protection of the individual, and since danger might threaten from either side or from behind, the ears were placed in the middle of the head. The last of the special senses developed was the sense of sight, and with it came the extensive growth of the cerebral hemispheres, so that while the senses of hearing, taste and smell are poorly developed, the sense of sight has a direct pathway to the intellectual organization of the brain. An average man may listen to the description of a piece of machinery that has little meaning to him. If he is shown a picture he instantly obtains a conception of the mechanism, and often a correct one.

The eye, aided by the microscope and the test tube, enabled Pasteur to make his discoveries, the greatest gift ever made to humanity by man. Pasteur's work was vitalized by Lister, and the modern edifice of surgery is erected on the foundation laid by these two men. Asepsis and antisepsis came too late for Bigelow. He had reached the time of life when new principles were not readily received. This attitude was revealed also in his reception of abdominal surgery, which was making unlooked for revelations under Lawson Tait of England, Jules Pean of France, Joseph Price of Philadelphia, and sturdy, independent John Homans of Boston.

Postmortem investigations of diseases of the abdomen during this period too often showed, not the pathologic condition of the patient during life, but

rather the complication from which the patient died. Great confusion naturally resulted in attempts to correlate clinical facts with terminal conditions found at necropsy, that had not existed when the clinical facts were gathered. The return to the hunterian method of pathologic examination under the eye, made possible by means of surgical operations in the abdomen and the other great cavities of the body, and the removal of pieces of tissue for the microscopic study of pathologic conditions during life, led to great advances. Dr. Bigelow, in teaching, made free use of gross pathologic specimens, and one can imagine the effect on his students by his constant recourse to pathologic demonstrations. One may also discern the growth of interest in pathology which resulted in the application of the methods of the study of frozen sections as begun in the Massachusetts General Hospital by Whitney and Mixter, who introduced carbon dioxid as a freezing medium. The quick examination of sections of living tissue, especially since Wilson devised a method for its rapid differential staining, has enabled the microscope to guide the operating surgeon's knife for the benefit of the patient, in a manner as fundamentally different from the examination of mummified dead tissue, several days after the operation, as the work of the operating surgeon differs from the anatomist's dissection of the cadaver.

The wonders of the roentgen ray were yet come to make the eye supreme. I often think of Sir William Crookes and his untiring efforts in the interest of science. In his attempts to demonstrate a fourth state of matter, Crookes exhausted the air from a heavy glass bulb. When certain electric attachments were made, the bulb became filled with luminous matter and, as Crookes expressed it, "actually touched the borderland where matter and force seem to merge one into another." He named this luminous substance the cathode ray, composed of negative electrons, which is the fundamental conception of the roentgen ray. Crookes also pointed out that when roentgen rays come in contact with solid matter they give rise to shadows, and that the cathode rays, when outside a magnetic field, always travel in a straight line without regard to the position of the poles. Roentgen's splendid work must not blind us to the fundamental character of the work of Crookes.

Fig. 1.—Bigelow medal, obverse.

ANIMAL EXPERIMENTATION, THE DOCTOR AND THE DOG

Jenner on a certain occasion presented arguments which were capable of being proved, but which he had not proved. The following day John Hunter wrote to Jenner saying, "Why submit hypotheses? Try it on a hedgehog and know." Animal experimentation has resulted in gifts of inestimable value to humanity. The pernicious activities of antivivisectionists seriously threaten the continuance of these investigations, which are of such paramount importance to the nation's health. It is of interest to note that in the last election in California the antivivisectionists, aided by various organized cults, such as Christian science, osteopathy and chiropractic, were defeated two to one by a referendum directly to the people, a triumph of an appeal to reason. The defeat of the antivivisectionists was owing in a great measure to the sagacity of Dr. Ray Lyman Wilbur, president of Leland Stanford University. The people, the farmers in particular, were shown what animal experimentation has accomplished in the prevention of disease to farm animals, what it has accomplished for the canning industry in relation to botulism, and the possible effect on economic conditions in California if the work should be discontinued.

It is undoubtedly true that much of the opposition to animal experimentation among reasonable persons has been brought about by a few careless physicians. For at least four thousand years the dog has been man's friend and companion, and the occasional buying of stolen family pets at small prices for animal experimentation, as has been done in some laboratories, has alienated the public. The physician should not be a fence for stolen property, and his complicity cannot be glossed over by saying that he did not know the property was stolen. The physician has no more right to a stolen dog than to a stolen purse. All these difficulties could be overcome by a proper law which would turn vagrant dogs over to accredited institutions. At the present time thousands of homeless dogs, many times more than the number used in all the laboratories of the United States, are killed at the pounds of the various cities, often by methods entailing more pain than any experiment carried out in a controlled laboratory, and are an economic loss except so far as their hides and fat can be used for commercial purposes. Some methods should be devised whereby these animals, or as many as necessary, may become legally available for the use of recognized, responsible laboratories for experimental work.

Moreover, the medical profession in the past has been derelict in permitting untrained men to perform animal experimentation without supervision. It was such experimentation that roused the resentment of a great many persons. If it is the wish of the medical profession to continue this work, its members must not furnish a market for the thief and they must protect the dog from the untrained experimenter. Fortunately, the organized physicians of the country have already made considerable progress in controlling the conditions of animal experimentation from within. Regulations which place upon laboratory directors responsibility for the importance of the problems studied and for the propriety of the procedures used in the solution of these problems have been formulated and adopted by corporate vote in medical institutions

throughout the land. By pursuing a policy of honesty and faithfulness to a trust, animal experimentation can be carried on without serious objection. Experiments on animals were performed in Bigelow's time, but today such investigation has become one of the foundation stones of progress.

THE MASSACHUSETTS GENERAL HOSPITAL

M. G. H., as it is lovingly called, was organized one hundred years ago (Sept. 3, 1821). To Dr. John C. Warren and Dr. James Jackson must be given the credit for its organization and for the high character of its service. Dr. Bigelow, during his long connection with the hospital, was ever assiduous in advancing its interests; and under his influence and that of his illustrious colleagues the institution became a great teaching hospital, and its fine traditions have always been worthily maintained. It is fitting in this connection that I acknowledge the debt of gratitude my colleagues and I owe the Massachusetts General Hospital for the kindness, sympathy and cordial help we have received from its management and staff at all times. In the beginning, the hospital was devoted to charity patients. Admitting day patients and patients who paid was a later event and met with the opposition of Dr. Bigelow, whose mind, acute as it was, did not grasp this new sociologic doctrine. The discovery of bacteria and the applications of this discovery to medicine and surgery brought about a remarkable and sudden evolution in hospitalization, and its beneficent results could not readily be comprehended in Bigelow's time.

Fig. 2.—Bigelow medal, reverse.

American hospital organization in this period was modeled on that of Great Britain's. The caste system, which was the mainstay of the British social structure, was exemplified in its hospital organization and was the result of the British educational system, which was traditional and calculated to continue the caste. Slosson, speaking of the British government in relation to the universities, justly says: "So in 1874, Sir William Parkin relinquished the attempt to manufacture the dyes he had discovered because, as he said, Oxford and Cambridge refused to educate chemists or to carry on research. Their studients, trained in the classics for the profession of being a gentleman, showed a decided repugnance to the laboratory on account of its bad smells. So when Hofmann [1] went home he virtually took the infant industry along with him to Germany, where Ph.D.s were cheap and plentiful and not afraid of bad smells." Such neglect on the part of England was the fundamental basis of the great war. The dye industry gave the control of explosives and gases to Germany.

In the early days, a hospital was a place for sick persons who had no homes, and for charity patients. This ancient conception of hospitalization did not anticipate modern conditions; it resulted in the denying of hospital care to the honest taxpayer of moderate means, and the extraordinary spectacle was presented of a premium given to inefficiency and laziness. The worthless person was given all the benefits of modern science and of group medicine, which could not be obtained by the average man at an expense he was able to bear. The Massachusetts General Hospital was one of the first hospitals in this country to recognize the rights of all the people to adequate treatment, each contributing as he might be able, the poor to receive as much as the middle class and the rich, but no more.

BIGELOW THE SURGEON AND TEACHER

Given one well trained physician of the highest type and he will do better work for a thousand people than ten specialists. One tenth of each patient would be treated better by the specialist, but the nine tenths would have little or no treatment. It is for the next generation to produce, as nearly as possible, the superman who shall have obtained from many special workers the threads of all knowledge to be woven together and applied as a whole for the benefit of the patient. Dr. Bigelow belonged to a generation of men who developed a keen power of observation, and who with the history of a case, and their highly trained special senses accomplished wonders.

Dr. Bigelow's brilliance excelled that of all the group of striking personalities and unusual men of Boston in his day. His career was unexampled in brilliancy and success. In mental acumen, creative vision and swift, unerring and direct action he was unequaled. Probably the essence of his mental powers lay in his ability to concentrate instantly on the vital factor or factors of any problem, and to disregard the unessential details. He picked the kernel of the nut and threw away the husks, to be worked over by others if they chose, or if it fitted into some less important part of the structure he was engaged in rearing. Yet in spite of his apparent disregard for details, no one ever gave greater attention to the essential. This is a characteristic of great men. We think of them as having complex mental machinery. In reality, their mental processes are simple and direct.

Dr. Bigelow's surgical work was thus described by one of his students:

> He stood erect and did all his cutting at arm's length. Every stroke of the knife accomplished all and no more than he intended it to accomplish. He used the belly of the knife rather than the point, drawing it with swift strokes as a violin bow is drawn. His hands never fumbled or made uncertain motions; all were direct, unerring, firm, yet delicate. He displayed perfect coordination of mind, eye and hand. It must be remembered that in Bigelow's time surgery was almost wholly confined to the outside of the body, and thus comparatively limited in scope. However, opportunity was

1. Slosson, E. E.: Creative Chemistry, Century, 1920, p. 80.

given for dramatic display, and Bigelow liked the applause of colleagues and students. His performance of a lateral lithotomy in the presence of the surgeons from some Russian war vessels was described as being more like a juggler's trick than a deliberate surgical operation. Many of his operations were performed with such swiftness and unerring strokes as to suggest legerdemain. On one occasion, with what seemed an incredibly small number of rapid strokes of knife, saw and chisel, he removed an upper jaw. In doing this a large artery was opened, a blood clot formed in the patient's larynx and trachea, and she stopped breathing. Bigelow cooly took her pulse, remarked, "She doesn't seem to be breathing, does she? Well, tracheotomy." The instrument was placed in his hands; in two strokes he entered the trachea, inserted the tube, and blew into it. The patient took a breath, whereupon Dr. Bigelow quietly picked up the jaw and described the lesion in it as though nothing unusual had occurred; his assistants meanwhile secured the wounded artery. His delicacy of touch was remarkable. Sometimes, by merely placing his fingers on a diseased or injured part a correct diagnosis was made. In one instance he passed his finger across a swelling in the sole of a foot and said "fatty tumor," a condition no one else had suspected.

As a teacher, Bigelow's special qualities were those of epigrammatic and dramatic expression and demonstration. His frequent practice of putting a subject in a nutshell was remarkable. An example worthy of note is as follows: "Gentlemen," said Dr. Bigelow, "many pages have been written describing various more or less complicated ways of treating the shoulder after a dislocation of the joint has been reduced. The whole thing consists of: pad in the axilla, elbow to the side, arm in a sling." He often arranged his amphitheater and his patients with a view to dramatic effect. He was strikingly handsome and distinguished in appearance, which added force and charm to his personal influence. He exercised on his student world the peculiar power and fascination which were the result of his personal attributes as well as of those which he brought to his teaching and to the practice of surgery.

It is to be regretted that our first and second year medical students do not have the advantage of attending the dramatic exhibitions which are the precious heritage of many of the older practicing surgeons. In the plastic period of student life, even from the back seats of a surgical amphitheater filled with a spellbound audience, the reading of a case history, the discussion by the surgeon of the details of the operation, and the report of the pathologist, stimulate the student's imagination. After all, a student will more often carry away a truth, or the essential elements of a surgical case, if it is dramatically placed before him. One of Dr. Bigelow's most distinguished students summed up Dr. Bigelow's characteristics in this forceful paragraph:

> If I were to try to sum up Dr. Bigelow succinctly I might say that as a surgeon his remarkable qualities were: A keen diagnostician, an operator of unrivaled dexterity and finished style, a genius in seeing the vital point of surgical problems, possessed of great mental acumen, with the ability to extract the meat from the nut in the swiftest and most telling way, as a teacher remarkable for the power of epigrammatic and dramatic expression and demonstration, thus driving home facts in a most telling manner. These qualities embodied in a man of imposing and distinguished personality, by virtue of which fact their power was greatly enhanced.

Dr. Bigelow had many interests outside his profession, but they were only hobbies. Among these were the restoration of old pictures, soil fertilizers, fancy breeds of pigeons, gems, and the facial expression of monkeys. He dominated the Harvard Medical School and the Massachusetts General Hospital for many years, and up to 1879 or 1880 it was within his power to make or mar the careers of the younger surgeons of Boston; a power which he exercised in many instances.

SURGEONS TRAINED BY DR. BIGELOW

Dr. Bigelow was idolized by his students and admired by his assistants. As an operator, teacher, writer, and originator of surgical procedures, he made a profound impression on the surgery of his day. Yet apparently he never tried to establish a school of surgeons to continue his work. He could not brook competition, and his aid to brilliant students depended on caprice rather than a great surgeon's fixed policy of development. In spite of this, after he retired in 1886 surgeons of his training more or less dominated surgery in Boston. Among his assistants were Dr. C. B. Porter, one of the most skilful surgeons I have ever seen operate; Dr. Richard Manning Hodges, a bold and skilful surgeon; Dr. H. H. Beach, who justly acquired fame; Dr. Arthur Cabot, a sound, honest surgeon of great learning, who made surgical contributions of a permanent character; and by no means least, the brilliant and erratic surgical genius, Dr. Francis Watson, whose contributions to urology, hourglass stomach, and so forth, have placed him permanently in the annals of surgery.

Dr. Maurice H. Richardson, the man whose surgical judgment was not exceeded by any surgeon I have ever known, was not of the Bigelow school, but it is to be noted that his early training was received in France and that he had many of the Bigelow characteristics.

In appearance and intellectual qualities, Bigelow resembled Theodor Billroth, the great Swedish surgeon who was born in Germany and lived through his contributing years in Vienna. Billroth was the father of initiative surgery, the school that attacked disease in the early stages by constructive effort, not waiting until the advanced stages rendered destructive surgery necessary. Billroth's ambition was to develop great surgeons among his students, and his ambition was realized. Von Eiselsberg, one of his students, is the first of the Teutonic surgeons today. The last time I was in Vienna, just before the great war, Hockenegg still retained in loving memory Billroth's operating rooms, inconvenient as they were. The lamented Mikulicz, Gersuny, Czerny and many others I could name called Billroth Master.

Richard Volkmann of Halle, Germany, had Billroth's characteristics. Among his assistants were Kraske, Sprengel and Schede. Volkmann's death before the great war cannot be regretted, since he was spared the pain of severing his friendly relations with the English, whom he admired greatly, even to the extent of long Dundrearyish whiskers and English clothes. Volkmann's later years were saddened by a painful affliction. The devotion of his students is exemplified in the distinguished surgeon Fedor Krause, who, during the last years of Volkmann's life, carried on most of his work and maintained his clinic.

Terrier of France was equally distinguished by his students, such as Richelot, Quénu, Broca, Hartmann, Gosset and Montprofit.

Of Joseph Lister we must say that his students are representatives of Great Britain's best and the world's best.

One of the most splendid examples of the conviction that science comes first, and of the love and devotion to a great cause which transcends the desire for personal elevation, was the Danish surgeon Christian Fen-

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ger of Chicago, the Father of modern surgery in the West. Fenger in his best teaching years had only unimportant hospital and teaching connections. But among his students were the late John B. Murphy, the greatest clinical teacher of surgery of my time, M. L. Harris, A. J. Ochsner and Frank Billings, the distinguished internist whose alert mind comprehends surgical conditions as clearly as the surgeon. My brother or I used to travel each Wednesday night to Chicago to attend Fenger's Thursday clinics and demonstrations. We returned home the same evening with renewed vigor and stimulus for greater effort. Every year the students of Fenger gather together for a memorial meeting. They do not meet to eulogize, but to stimulate scientific progress, and this is as Fenger would have wished. In a like manner you who were students of Henry Jacob Bigelow, New England's Master Surgeon, propose to perpetuate his name and his work.

THE ENDURING QUALITY OF BIGELOW'S WORK

Henry Jacob Bigelow's importance in the history of medicine will not be exceeded by any American, and will be equaled by few. His recognition and advocacy of ether anesthesia permanently links his name with that of Morton and Warren. Ether was first given for general surgical anesthesia, Oct. 16, 1846, by William T. G. Morton in the clinic of Dr. John C. Warren in the Massachusetts General Hospital, who then removed a tumor from the neck of Gilbert Abbott. The operation was performed before the medical students of Harvard and many members of the medical profession. Oliver Wendell Holmes coined the words anesthetic, anesthesia and anesthetist at that time. Without the aid of Dr. Warren, Morton might not have had the chance to try out ether anesthesia. The following is quoted from The Bigelow Memoirs:

> Dr. Bigelow was the unflinching advocate of sulphuric ether as the only safe anesthetic: and his unshaken opinion had a very wide and lasting influence. Bigelow instituted important and productive experiments in anesthesia. He inhaled new and untried anesthetic agents. He made practical and original studies of asphyxia, and thoroughly established the fact that insensibility from the inhalation of nitrous oxide gas is largely due to asphyxia. He was also the first to show that anesthesia by nitrous oxide could be accomplished with certainty only by the use of a large volume of gas; and thus made the way plain to Colton and others for its successful adoption in tooth-pulling, and in brief surgical operations.

Dr. William H. Welch, Major General Leonard Wood, my brother, and I, were the four medical members of the Electorate of 1920 for the Hall of Fame; and after mature consideration we gave support to Morton on account of the transcendent importance of his contribution of ether anesthesia. The names of Warren and Bigelow, however, must be inseparably linked with that of Morton in connection with ether anesthesia.

The eventual reputation of a man does not depend so much on the average excellence of his work as on matters that are fundamental in the way of inventions and discovery. Dr. Bigelow made two original contributions to the science and art of surgery which gave him lasting fame: the bloodless reduction of hip-joint dislocation by manipulation, and litholapaxy.

In 1861, Bigelow published a description for the bloodless reduction of hip joint dislocations by manipulation. In 1869 he published a complete monograph on the subject. This method is still without a competitor. The greatness of this achievement can be better understood by reading the description of the pulleys and tractors and other instruments of torture which in the pre-Bigelow days, before the use of the anesthetic, were used to force the head of the femur into the acetabulum: and which were usually unsuccessful. Dr. Bigelow's classic description of the anatomy of the hip joint and its relation to the ligaments is one of the masterpieces of American surgical literature. Dr. Bigelow was greatly interested in all types of orthopedic surgery, and as the result of his initiative Boston has been the world's center of orthopedic surgery for fifty years.

Dr. Bigelow worked on a method for crushing stones in the urinary bladder for about ten years, and finally published a description of the operation in 1878. This operation remains the safe procedure for the nonsurgical removal of cystic calculi. The invention and development of the lithotrite reveals Bigelow's extraordinary inventive genius and mechanical conceptions. He made these, and scores of other instruments himself, for various original purposes. His instruments are still used in the Massachusetts General and other hospitals. His facile manipulation of instruments was that of a prestidigitator. The story is told of his comment at the Boston Museum of Fine Arts that a certain cabinet containing valuable specimens could be unlocked and the contents removed easily. The curator and others present laughed at the idea, said that the case was not only locked but under watch, and that it could not be opened without detection. A few days later Dr. Bigelow, standing with his back to the case in question, picked the lock, removed the specimens and relocked the case, talking the while to his companions, who had believed it could not be done. Bigelow carried the specimens away, and a few days later during the hue and cry resulting from the discovery of the loss, he walked into the museum and handed back the valuables to the officials.

Another medical man produced by Boston, whose name will travel into the future with that of Bigelow, is the late Reginald H. Fitz. Fitz made three monumental contributions to permanent medical literature. He showed the relation of the appendix to all the infections within the abdomen which we recognize under the general title of appendicitis and its results, the relation of acute pancreatitis to fat necrosis, and the relation of Meckel's and other diverticula to the chain of events which the presence of these congenital or acquired lesions may cause.

Dr. Bigelow, after serving greatly, died, Oct. 30, 1890, in his seventy-second year.

Death Rate Declines.—Statistics of the Metropolitan Life Insurance Company, covering 13,193,692 policyholders, show a cut of 23 per cent. in the death rate for the year to date, below that of 1920. The most marked declines are for influenza and pneumonia, tuberculosis and organic heart disease. The death rate for pneumonia for the first six months of this year was about one ninth that for the first half of 1920; likewise the death rate from pneumonia for the first half of 1921 was about one half that for the corresponding period of last year. These decreases, together with a drop of 19 per cent. in the tuberculosis rate and 9 per cent. in that for cardiac diseases, are the chief elements responsible for this year's remarkable health record. Other diseases which have registered much lower this year than last are cerebral hemorrhage and Bright's disease, measles and whooping cough. There has been a decrease in the mortality from conditions incidental to pregnancy and childbirth of 21.2 per cent.

A SIGN OCCURRING IN CASES OF TABES COMPLICATED BY CHARCOT JOINTS*

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Occasionally one sees a tabetic with an acute Charcot joint—usually the result of a joint fracture or some other trauma—who suffers pain in or around the joint. Occasionally one meets a painful tabetic fracture. It has interested me greatly that a Charcot joint or a tabetic fracture should be painful, because a series of experiments on cats has led me to believe that most Charcot joints are caused by trauma to a limb which lacks the warning, protective and curative sense of pain.[1] If this theory be true, then a painful Charcot joint is a paradox. If a tabetic can feel pain in a joint, according to this theory he should never develop a Charcot arthropathy at all.

Closer examination of such patients has made it apparent that a painful Charcot joint is not so paradoxical as it might seem. On testing the pain sense of the affected limb more closely, I have found that the skin may retain its pain sense while the periosteum may be analgesic. If one thrusts a pin through the skin of a leg with a painful Charcot joint, the patient feels a twinge of pain; if one presses the pin farther, one may dance its point about on the tibial periosteum and prove that the bone is perfectly analgesic. The bone is analgesic, the skin is not.

Oppenheim[2] notes that the pain sense of the deep parts may be dulled in the early stages of tabes. He saw patients with tabetic arthropathies whose skin still retained a perfectly normal sense of pain, but who felt absolutely no pain when the affected joints were moved.

The pain of these fresh tabetic joints or fractures seems to be felt not in the bone or joint, but in the skin and soft parts, which are tightly stretched over a joint or fracture immoderately swollen with blood. That the bones are not painful, even when the skin is, is further shown by the curious silly smile that spreads over the patient's face as he listens to and feels his bones grate on one another when the surgeon elicits crepitus or makes maneuvers of reposition. This dual sensibility of skin and periosteum would indicate that cutaneous and periosteal pain fibers run through the cord in different paths: that one may be affected while the other is intact.

SUMMARY

Some tabetics have an analgesia of the bone but not of the skin. This may be tested by thrusting a pin through the skin onto the bone.

Such patients may have pain following an acute development of a Charcot joint. Their pain is felt in the distended skin and soft parts, not in the bone.

This kind of pain does not subvert the theory that Charcot joints are due to trauma plus a lack of the warning sense of pain.

Pain fibers for skin and for bone probably run through the cord in different paths.

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* From the Division of Surgery, Leland Stanford Junior University School of Medicine.

1. Eloesser, Leo: On the Nature of Neuropathic Affections of the Joints, Ann. Surg. 66:201 (Aug.) 1917.
2. Oppenheim: Lehrbuch der Nervenkrankheiten, Ed. 6, p. 179.

UTERINE CANCER

WITH OBSERVATIONS AND RESULTS OF TREATMENT WITH RADIUM IN MORE THAN THREE HUNDRED CASES*

REX DUNCAN, M.D.
LOS ANGELES

Statistics emanating from the American Society for the Control of Cancer show that in the year 1918 there was a mortality of 11,965 from uterine cancer in the United States. Such a mortality from plague or any so-called preventable disease would cause great publicity and unlimited activity to cope with the situation. Cancer is to some extent preventable and curable in a large percentage of cases, if diagnosed and given appropriate treatment early. It is essential, therefore, to extend popular knowledge, so that women with pelvic disturbance may receive proper examination. As chronic irritation is apparently an etiologic factor in the production of cancer, the removal of all causes of chronic irritation and the extirpation of precancerous lesions would no doubt diminish the frequency of this disease. Notwithstanding the excellent work that is being done by the American Society for the Prevention of Cancer, and other agencies, there is apparently no decrease in the frequency of uterine cancer. It is important, therefore, that we give greater consideration to the earlier recognition and appropriate treatment of the large number of cases that we see.

TABLE 1.—RESULTS OF SURGICAL TREATMENT OF CARCINOMA OF THE UTERUS

	Number of Cases	Operability	Operative Mortality	Cures for 5 Year Period: Traced Cases	Cures for 5 Year Period: Operated Cases	Cases Applying for Treatment
Carcinoma of the cervix removed by radical abdominal operation	5,027	1,720	1,000			
Percentage	.....	34.21	18.23	35.41	19.22	11.72
Carcinoma of the cervix removed by vaginal route	1,205	654	192			
Percentage	.....	58.1	9.35	29.67	17.74	9.62
Carcinoma of the fundus	.....	242				
Percentage	.....	87.73	8.19	.....	61.15	53.03
Accepting Wertheim's conclusion that carcinoma of the cervix is twenty times as frequent as carcinoma of the fundus, calculating the combined percentages for all cases the result is	.....	37.61	17.74	36.63	21.31	18.44

SURGICAL TREATMENT

The value of any method of therapy can only be determined from a broad and unprejudiced study of the end-results, both curative and palliative, obtained in a large number of cases observed over a period of years. Until recent years, surgery has been the accepted treatment in early cases, and in the more advanced cases only palliative measures have been employed. The most recent advance in the surgical treatment of uterine cancer followed the publication by Wertheim, in 1898, of his operation, which advocates the widest removal of tissue. Such a radical operation is attended with a high operative mortality which, in the hands of the average surgeon, makes it almost prohibitive, while a less radical

* From the Radium and Oncologic Institute.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

surgical procedure limits decidedly the percentage of ultimate cures. Table 1, compiled from statistics published by Janeway [1] and others, shows the results of the surgical treatment of uterine cancer, reported by a large number of surgeons in this country and in Europe. These figures require no further comment and demonstrate beyond question that the operative treatment of cancer of the uterus is, even by the most skilled surgeons, far from satisfactory.

RADIUM THERAPY

In more recent years, radium therapy has developed another and a more conservative method of treating cancer of the uterus. The fact that radium may be employed in more than 80 per cent. of cases that are inoperable and recurrent, as well as in the early cases, renders it worthy of consideration in the treatment of this disease. Numerous observers report clinical cures and marked improvement in a high percentage of cases of uterine cancer treated with radium. Many of these reports have been made by men whose cases have been under observation only a short time and whose experiences are limited to a few cases and a small quantity of radium, rendering their reports not sufficiently complete for statistical purposes. The results of radium therapy reported by a number of observers, whose experiences extend over a considerable time are given in Table 2.

TABLE 2.—RESULTS OF RADIUM THERAPY IN CARCINOMA OF THE UTERUS

Reporter and Publication	Percentage of Cures		Number of Patients Treated	Reported Only Those Patients Well After More Than
	Operable Cases	Inoperable Cases		
Werner: Arch. f. Gynäk. 103, No. 1, 1916	...	14	102	3 years
Döderlein: Zentralbl. f. Gynäk., 1915, p. 185	...	23	153	1 year
Maiolo: Ann. di Ostet. 41 : 99, 1917.	...	38	42	1 to 2 years
Breasens: Arch. mens. d'obst. et de gynéc. 6 : 34, 1917	100	57	126	1 to 2 years
Heyman: XII Versamml. Nord. Chir. Ver. Christiania, July, 1919	...	27	66	4 to 5 years (85 % inoperable)
Ransohoff: J. A. M. A. 74 : 163 (Jan. 17) 1920	...	25	...	2½ to 5½ years
Janeway: Surg., Gynec. & Obst. 29 : 242 (Sept.) 1919	...	70	17	6 mo. to 3½ yrs.
Vital, Asa: Med. Ibera, numero extraordinario, 1, cong. nac. de med. y cirug., p. 62	50	38	...	3 years
Enguerido	100	43	12	

While the cases reported above are comparatively few, and the time elapsed too short to justify conclusions, the results are encouraging and gratifying when we consider the high percentage of clinical cures obtained in the earlier cases and the excellent results in the inoperable and recurrent cases that are otherwise hopeless.

Radium owes its therapeutic value to a hypersusceptibility of pathologic tissues and to a selective action on certain normal tissues. The destruction and absorption of the neoplastic elements under the influence of radium radiation have been demonstrated by ourselves and by numerous observers. Clinically, however, we find a marked variation in the susceptibility of uterine cancer to radiation, demonstrating that there are no doubt certain factors that are not yet thoroughly understood. While various physical and histologic studies furnish the basis of determination of dosage, adequate clinical experience, together with a thorough understanding of the histologic changes produced, and sufficient knowledge of the physical properties of radium to obtain the proper screening and dosage, are essential to permit of necessary variation in the technic and

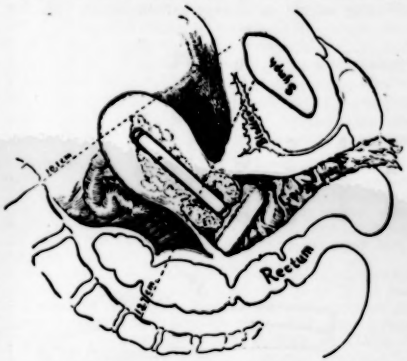

Fig. 1.—Pelvic measurements and position of the intra-uterine and vaginal applicators in place.

dosage to meet the requirements of each individual case. Tissue changes produced depend largely on the dosage and technic and the proximity of the tissue to the radium applicator. It is necessary to effect a thorough radiation of both the local area involved and of the entire pelvis without producing too great a destruction of local tissues or injury to the rectum and bladder.

Cervical carcinoma may spread by infiltration of the lymph vessels of the parametrium, by direct extension into the fundus and broad ligaments; by extension to

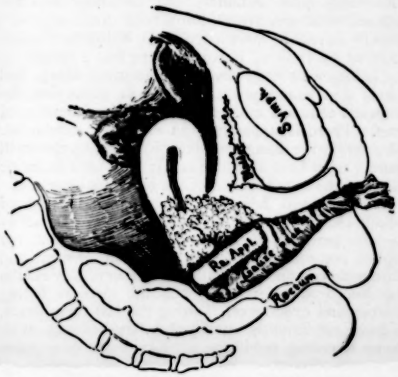

Fig. 2.—Radium applicator held in vagina by gauze pack; may be directed toward any part of the vagina or pelvis.

the vaginal walls and thence into the paravaginal tissues and through the vesicovaginal septum into the bladder or along the sacro-uterine ligaments to the pararectal tissues and rectum. These structures all lie within the pelvis, adjacent to or below the midpelvic

1. Janeway, H. H.: Surg., Gynec. & Obst. 29: 242 (Sept.) 1919.

plane, which has anteroposterior and transverse diameters of approximately 12 cm. The uterus lies in the pelvic axis; therefore, an applicator placed within the cervico-uterine canal will effect an even radiation throughout the pelvic cavity. The radiation must be sufficiently intense to destroy carcinomatous cells for a radius of 6 cm. (Fig. 1.) Involvement of the vaginal and paravaginal tissues may be accurately and adequately radiated by means of a suitable applicator placed within the vagina (Fig. 2).

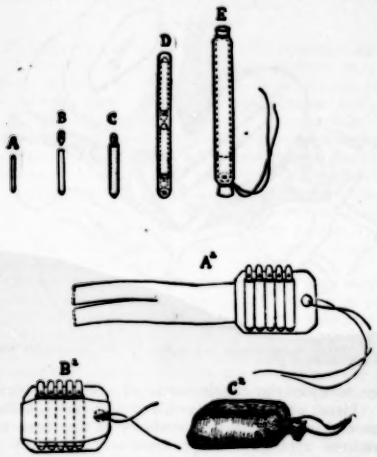

Fig. 3.—Emanation tubes and screens employed in making both intra-uterine and vaginal applicators.

Knowing quite definitely the pathology and the anatomic structures involved in uterine cancer and with a rapidly increasing knowledge of the histologic changes produced by radium, it would seem but a matter of time before we should develop an accurate dosage and technic that would prove effective in destroying the neoplastic elements and produce a high percentage of cures. There is apparently an effort to standardize and simplify the dosage and technic, based on the small quantity of radium available rather than on a scientific basis and the requirements of the individual case.

Five years ago, I began my work with 100 mg. of radium element in the form of salts. This quantity has been gradually increased until I now have at my disposal approximately 1 gm. of radium element and a throughly equipped emanation laboratory. My results have improved consistently with the increase in my facilities and experience. During the last three years, we have continuously employed a larger dosage with heavier screening, producing less local tissue destruction and more effective radiation of the entire pelvis, as evidenced by the clinical changes resulting. We are convinced that large quantities of radium or radium emanation are necessary, and we are employing applicators containing from 200 to 500 millicuries, which are left in situ for from ten to twenty hours, at each application. The total dosage employing both vaginal and intra-uterine applications averages from 6,000 to 10,000 millicurie hours. As a rule, the necessary treatment can be given in from two to four applications, made at intervals of forty-eight hours, thus requiring the patient to remain in the hospital on an average of less than one week.

TECHNIC

We have found most efficient, vaginal applicators made thus (Fig. 3):

Radium emanation tubes of the desired activity and number and screened with 0.5 mm. of platinum, and from 1 to 2 mm. of brass, as desired, are placed on a piece of lead 2 mm. thick and of the desired shape. This is all wrapped in 1 or more cm. of gauze and covered with a rubber finger cot. Such an applicator is easily sterilized and may be accurately placed in any portion of the vagina and retained in position by the usual gauze vaginal pack, which also holds at a distance from the applicator the area in which limited radiation is desired. Intra-uterine applicators consist of a sufficient number of radium emanation tubes, of the desired activity, placed end to end, to equal the length of the cervico-uterine canal and are screened with 0.5 mm. of platinum and from 1 to 2 mm. of brass, as desired, and are covered with 2 mm. of pure rubber gum tubing to absorb the secondary rays. This applicator is sterilized by boiling. Intra-uterine applications effect a thorough radiation of the entire pelvis, as previously described. The quantity employed is usually about 200 millicuries and the dosage from 4,000 to 6,000 millicurie hours, depending on the character and size of the uterus. Vaginal applicators are so placed as to effect a thorough radiation of all vaginal involvement, also the cervix and the parametrium on each side through the vaginal walls.

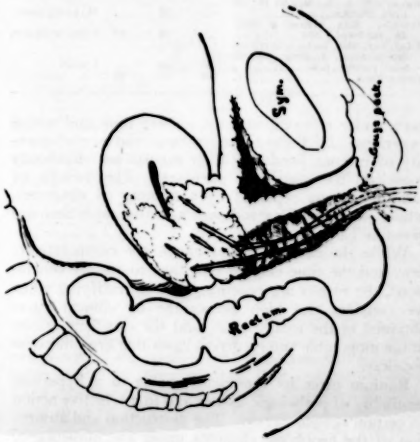

Fig. 4.—Screened emanation tubes and bare tubes buried in tumor.

In certain cases, we have found it desirable to bury within the tumor mass a number of emanation needles containing approximately 50 millicuries each, and screened with 0.5 mm. of platinum. These needles are placed at a distance of approximately 3 cm. and are allowed to remain in situ for ten hours. In certain other cases, we have buried a number of bare emana-

tion tubes of small activity which are not removed (Fig. 4). Needles may be employed alone or in conjunction with the vaginal or intra-uterine applicators mentioned above. More recently in a group of cases, we have employed, in addition to the local application of radium, massive doses of radium externally or deep roentgen-ray therapy. These external applications are, however, in my opinion, of unproved value.

Notwithstanding a rapid absorption of carcinomatous tissue in many cases, we have had little immediate constitutional disturbance from toxemia or other causes. In fact, in a majority of cases, a rapid and marked improvement in the constitutional condition and the blood picture is shown.

The elimination is carefully watched during the period of treatment, and copious vaginal douches of saline solution are given daily for a local cleansing effect.

The bladder and rectum are thoroughly emptied before each application of radium, and by use of the pack, as described above, are held well away from the vaginal application. We have had very little annoyance from bladder irritation, though in cases in which there is involvement of the posterior vaginal wall a more or less severe rectal tenesmus develops about ten days after treatment and continues for about two weeks. This is controlled by appropriate medication.

RESULTS

From the treatment, there results more or less temporary inflammatory reaction and local tissue changes. There results a gradual absorption of the cancer tissue, the vaginal ulceration and new growth disappear, the cervix shows local healing and more or less absorption where it has been extensively involved. The uterus reduces in size, and due to changes in the parametrium, becomes less fixed. Such improvement gradually progresses, resulting in a more or less complete recovery. Six or ten weeks must elapse before the reaction has entirely subsided and the effect of treatment is complete. Subsequent treatment may be given if indicated. Care is necessary in applying radium to a scar resulting from previous radiation, surgery or cauterization. Primary curettage or cauterization is not beneficial, and in certain cases, aggravates the after-treatment symptoms and sequelae. Our experience is consistent with that of Clark and others that surgery following an apparent cure from radium is not only unnecessary but frequently disastrous.

In reporting the results of treatment of uterine cancer, it is necessary to separate these cases into several groups based on the anatomic distribution of the disease. This is rather difficult because of the great variation in the character and location of the involvement. Though rather inadequate, but for the sake of comparison and brevity, it has seemed to me desirable to employ the grouping with which we are generally most familiar.

The treatment and observation of more than 300 patients have elicited many interesting experiences, some disappointments, and some very brilliant results. The majority of my patients were referred to me by surgeons, which probably accounts for the small percentage of operable cases that I have treated.

The time that must elapse after treatment and apparent recovery before a patient can be considered cured is debatable. It is quite true that the longer the lapse of time, the less is the probability of recurrence. The recurrences following radium therapy are most frequent during the first year, and are apparently less frequent in subsequent years than following surgery.

Time will not permit of a discussion of individual cases, though in any large group there are many that would be of unusual interest and would be instructive. This is a detailed statistical report of the present status of 236 of my cases, treated previous to Feb. 1, 1920. I wish to say, however, that had there not resulted a single cure, the relief from pain, hemorrhage, odorous discharge and general improvement, with a consequent prolongation of life and comfort, would have been sufficient to justify treatment in practically every case.

Inoperable Cases.—There was a total number of 128, of which 51 are dead; 15 improved though with probable involvement; 6 not traced; 56, or 44 per cent., clinically well. The time elapsed since treatment in 4 cases is more than 4 years; in 4 cases, 3½ years; in 7 cases, 3 years; in 6 cases, 2½ years; in 6 cases, 2 years; in 9 cases, 1½ years, and in 20 cases, 1 year.

Recurrent Cases.—The total number was 76, of which 46 are dead, 9 improved, 4 not traced, and 17, or 22 per cent., are clinically well. The time elapsed since treatment in 2 cases is 4 years; in 1 case, 3½ years; in 2 cases, 3 years; in 2 cases, 2½ years; in 2 cases, 2 years, in 3 cases, 1½ years, and in 5 cases, 1 year.

Operable Cases.—The total number was 15, including 2 patients with early carcinoma of the fundus who are apparently well. Of the total number, 2 are dead, 13, or 86.6 per cent., are clinically well. The time elapsed since treatment in 1 case is more than 4 years; in 1 case, 3½ years; in 1 case, 2½ years; in 3 cases, 2 years; in 4 cases, 1½ years, and in 3 cases, 1 year.

Postoperative Prophylactic Cases.—There was a total number of 10, of which 6 are dead, 4, or 40 per cent., are clinically well. The time elapsed since treatment being 3½, 2½, 1½, and 1 year, respectively.

Special Cases.—Two cases of rectal recurrence followed six and ten months after treatment for the cervical involvement. Following a colostomy, the rectal recurrence was treated locally with radium. Both patients are apparently well; one nearly two years after treatment and one more than one year. Three patients received radium therapy promptly following a subtotal hysterectomy for suspected uterine fibroid, but which sections showed early carcinomatous changes of the endometrium extending into the cervix. These three patients are apparently well. Two patients were treated following radical cautery operation. One is dead and one apparently well.

TABLE 3.—TABULATED RESULTS OF TWO HUNDRED AND THIRTY-SIX CASES OF UTERINE CARCINOMA TREATED PREVIOUS TO FEB. 1, 1920

	Total No.	Dead	Improved	Not Traced	Clinically Well		Years Elapsed Since Treatment					
					No.	Per Cent.	4	3½	3	2½	2	1½	1
Inoperable	128	51	15	6	56	44	4	4	7	6	6	9	20
Recurrent	72	46	9	4	17	22	2	1	2	2	2	3	5
Operable	15	2	0	0	13	86.6	1	1	..	1	3	4	3
After oper.	10	6	0	0	4	40	..	1	..	1	..	1	1
Special	7	1	..	..	6	..	..	..	..	1	..	2	3
Total	226	106	24	10	96	40.6	7	7	9	11	11	19	32

The summary of these figures shows a total of 236 patients, of whom 106 are dead, 24 improved, 10 not traced, 96, or 40.6 per cent., clinically well. The time elapsed since treatment is more than 4 years in 7 cases, more than 3½ years in 7 cases, more than 3 years in 9 cases, more than 2½ years in 11 cases, more than 2 years in 11 cases, more than 1½ years in 19 cases and more than 1 year in 32 cases.

CONCLUSIONS

1. Uterine cancer when given early and appropriate treatment is curable in a large percentage of cases.

2. Curative treatment depends on early diagnosis. It is necessary, therefore, to extend public knowledge so that women will consult the physician early.

3. The profession must be more keen in the early recognition of uterine cancer, and greater attention should be given to the removal of chronic irritation and the extirpation of precancerous lesions.

4. Appropriate radium therapy in recurrent and inoperable carcinoma surpasses any known therapeutic agent. Pain, hemorrhage and odorous discharges are relieved, and there frequently occurs prompt improvement in the general condition of the patient. Life is prolonged, and there results a comparatively high percentage of clinical cures.

5. Radium therapy when employed by one with adequate facilities, skill and experience is the treatment of choice in early, or so-called operable, carcinoma of the cervix. It avoids operation with the attendant suffering, invalidism, complications and high immediate mortality. Symptoms are promptly relieved and there results a higher percentage of cures than from surgery or any other method of treatment.

6. The efficacy of radium therapy depends on an adequate quantity of radium or radium emanation and appropriate facilities, together with sufficient knowledge and experience for its proper application. Proper dosage and technic are of the utmost importance.

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THE TREATMENT OF CANCER OF THE UTERUS*

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The objects of this study are to discuss the prophylaxis of uterine cancer, to review briefly the diagnosis of carcinoma of the uterus, to group correctly the various stages of the disease, and to base the indications for a correct treatment on such a grouping. Thus, we may form a common working ground to enable us to define the indications and limitations of surgical treatment as well as of radiation therapy. The proper method of the application of radiation will be briefly considered. The apparent value of the roentgen ray and gamma ray in cancer of the uterus will lastly be presented in a statistical report of 168 consecutive cases treated and followed from April 1, 1914, to Dec. 31, 1919.

The physician is frequently consulted by patients complaining either of a leukorrhea that has existed for many years, or persistent menorrhagias and metrorrhagias, or sterility, though they had given birth to an offspring within the average normal period of time after entering married life but suffer from constitutional diseases or disturbances of the endocrine glandular system. A small number of these patients may not present any visible or palpable pathologic conditions. The larger number, however, evince pathologic conditions, chiefly of either the cervix, the body of the uterus or of the vaginal outlet, such as diastasis of the levator ani muscles with prolapse of the vagina and uterus, chronic cervicitis with hypertrophy, erosions, eversions and lacerations, chronic inflammations of the endocervix and endometrium and chronic myometritides. The pathologic states causing the enumerated symptoms are almost invariably characterized by hypertrophic processes—the result of proliferation of elementary tissue layers; hence treatment is rendered imperative. This may consist of a very thorough curettage of the endometrium and endocervix, an amputation or conical excision of the cervix, a levator ani muscle suture to close the vaginal introitus and thus prevent irritating substances from entering the canal. The removed tissues must be microscopically examined by a competent pathologist. As a matter of fact, the purpose of these surgical procedures is to obtain material to demonstrate absence or presence of malignancy. Should evidences of malignancy exist, then the classical panhysterectomy, either abdominal or vaginal, preferably with the use of the actual cautery, must follow the primarily diagnostic but also supposedly curative operative procedure. Quite a number of such patients may not show any evidences of malignancy on microscopic study of the removed tissue, yet after a brief period of an apparent recovery, the same symptoms and signs return. Such a state of affairs we should designate as clinically malignant and apply to it the treatment as advised for carcinoma.

Every gynecologist will recall a greater or less number of such instances. In my experience, almost all the patients that survived an operation for carcinoma for the customary five year limit had been either subjected to a panhysterectomy on account of unexpected microscopic findings or the recurrence and persistence of the underlying pathologic process after minor surgical procedures instituted for the correction of apparently benign diseases. Hence the treatment of cancer of the uterus comprises also prophylaxis.

SYMPTOMS

The cancer patient coming to the physician for consultation usually suffers from the well-known symptom triad: discharge, hemorrhage and pain—the discharge being the earliest, the hemorrhage the most alarming and the pain the most unfavorable symptom of cancer of the uterus. The occurrence of hemorrhage signifies an already advanced stage of the disease. The patient is willing to endure pain of quite a marked severity or to tolerate a discharge of even a marked odor, but the occurrence and persistence of hemorrhage will finally force her to seek medical advice.

The examination of a victim of uterine cancer should have for its purpose the exact answer to the following questions:

1. Is the cancer clearly localized within the uterus?
2. Has it invaded the contiguous tissues and organs?
3. Has it involved the regional lymph nodes?
4. Has it formed metastases in distant organs and structures, such as the liver and the bones?
5. Do constitutional diseases, such as Bright's disease, diabetes mellitus, decompensated heart lesions, complicate the uterine disease?

The methods to be applied are bimanual vaginoabdominal and recto-abdominal examinations, endoscopic examinations of the rectum and bladder, care-

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

ful general physical and laboratory examinations. The results obtained will enable us to answer correctly the above mentioned five questions.

A clearly localized carcinoma indicates a surgical eradication. A panhysterectomy will enable the surgeon to remove absolutely all cancer cells. After having opened the abdomen, we must at once proceed to make a careful palpation and inspection of the pelvic organs. Should the regional lymph nodes be enlarged or the parametrial tissues be indurated, then the operation must be terminated, as it is unlikely that all the cancer elements can be removed by even a very careful and extended operation. Therefore operability depends on one fact: absolute localization of the malignancy within the limits of the uterus. The deplorably poor results shown in the statistics of the surgical treatment of uterine cancers are solely due to the nonobservance of this one factor and tend to discredit surgery. As a consequence, a great number of patients refuse to submit to surgical treatment, even if indicated, being aware of the great number of failures following such a procedure.

Enlargement of the regional lymph nodes or induration of the parametrium may be the result of a secondary complicating infection. Since the greater number of carcinomas thus complicated are of an advanced stage, in which broken down and necrotic tissue form the port of entry for pathologic bacteria, it is evident that we must ascribe such findings in beginning cancer cases to malignant invasion.

Borderline cases, and those with a demonstrable beginning invasion of contiguous tissues and organs and regional lymph nodes, or clearly localized cases, occurring in patients with constitutional contraindications to operation, form the ideal group for radiation therapy. It is in these cases that roentgen ray and radium radiations caused the greatest number of local healings and apparent cures.

The advanced, desolate case, either with a "frozen pelvis," or extensive destruction of the vesicovaginal or rectovaginal septum, or marked cachexia, with general constitutional weakness, contraindicates radiation treatment. Such patients should be treated symptomatically. Should radiation be used, they may succumb to radiation toxemia, as they are so weakened by the cancer that they cannot any longer activate the defensive forces necessary to carry them safely over the period of reaction. Again the rays may rapidly destroy the necrotic processes, and urinary and fecal fistulas may promptly appear, adding to the already unbearable misery the sufferings from such fistulas.

INDICATIONS FOR TREATMENT

Summarizing these facts, we may group the cases and formulate the indications for treatment thus:

Group I. Cases which are clearly localized after a physical examination—*the operable cases*—are treated with an abdominal panhysterectomy.

Group II. Cases which appear to be doubtfully localized after a physical examination—*the borderline cases*—and operable cases rendering a poor surgical risk owing to complicating constitutional diseases, form the ideal group for radiation therapy.

Group III. Cases in which a demonstrable invasion of the contiguous tissues and organs and regional lymph nodes is found on physical examination—*the clearly inoperable cases*—are subjected to an intensive radiation treatment.

Group IV. Cases so far advanced that all treatment seems hopeless—*the terminal, desolate cases*—are treated symptomatically.

Group V. Recurrent local or regional cases are treated according to the same grouping and indications as stated under Groups I to IV.

Various controversies have arisen from time to time concerning the advisability of combining surgical with radiologic procedures. Also there have been discussions concerning the choice of radiation—some assert that radium rays are more effectual in killing off the disease than roentgen rays; while others state that a combination of both radium and roentgen rays assures better results.

The object of the treatment of cancer of the uterus is the eradication or degeneration of all cancer cells

TABLE 1.—BOENTGEN-RAY INTENSITIES OBTAINED FOR EACH CM. BY THE USE OF TWO PORTALS OF ENTRY—SUPRAPUBIC AND SACRAL: SIZE OF FIELD, 20 CM. DIAMETER; FOCAL DISTANCE, 32-35 CM.; MA. 5; MAX. K. V., 126; FILTER, 10 MM. ALUMINUM + 6 MM. SOLE LEATHER; FOR ANTEROPOSTERIOR DIAMETERS OF 16, 18, 20 AND 22 CM.*

I				II				III				IV			
	Intensities				Intensities				Intensities				Intensities		
Distance, Cm.	Anterior Field	Posterior Field	Total	Distance, Cm.	Anterior Field	Posterior Field	Total	Distance, Cm.	Anterior Field	Posterior Field	Total	Distance, Cm.	Anterior Field	Posterior Field	Total
Surface	100	8	108	Surface	100	4	104	Surface	100	2	102	Surface	100	0	100
1	98	10	108	1	98	6	104	1	98	3	101	1	98	1	99
2	87	14	101	2	87	8	95	2	87	4	91	2	87	2	89
3	77	17	94	3	77	10	87	3	77	6	83	3	77	3	80
4	69	21	90	4	69	14	83	4	69	8	77	4	69	4	73
5	60	28	88	5	60	17	77	5	60	10	70	5	60	6	66
6	51	31	82	6	51	21	72	6	51	14	65	6	51	8	59
7	47	37	84	7	47	26	73	7	47	17	64	7	47	10	57
8	42	42	84	8	42	31	73	8	42	21	63	8	42	14	56
9	37	47	84	9	37	37	74	9	37	26	63	9	37	17	54
10	31	51†	82	10	31	42	73	10	31	31	62	10	31	21	52
11	26	60	86	11	26†	47	73	11	26	37	63	11	26	26	52
12	21	60	81	12	21	51	72	12	21†	42	63	12	21	31	52
13	17	77	94	13	17	60	77	13	17	47	64	13	17	37	54
14	14	87	101	14	14	69	83	14	14	57	65	14	14†	42	56
15	10	98	108	15	10	77	87	15	10	69	79	15	10	47	57
16	8	100	108	16	8	87	95	16	8	69	77	16	8	51	59
				17	6	98	104	17	6	77	83	17	6	60	66
				18	4	100	104	18	4	87	91	18	4	69	73
								19	3	98	101	19	3	77	80
								20	2	100	102	20	2	87	89
												21	1	98	99
												22	0	100	100

* Intensities in boldface figures require additional radiation supplied by a 50 mg. radium element capsule thus: to I add 20 hours; to II add 30 hours; to III add 40 hours, and to IV add 50 hours.
† Indicates the usual location of cervix.

without permanent injury of the neighboring healthy organs, such as the bladder, the rectum and the small bowels. The uterus is contained within the true bony pelvis. The possible extent of the cancer in Groups I, II and III may be assumed to be confined to this space. The axis of the uterus corresponds in most cases to the

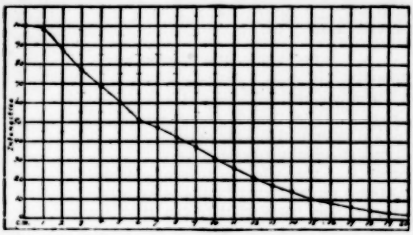

Fig. 1.—Measurements obtained with a Fürstenau intensimeter: transformer, Victor Snook; tube, Coolidge; 5 ma.; focal distance, 35 cm.; filters, 10 mm. aluminum and 6 mm. sole leather; K. V., 140 peak determined with a sphere gap; portal of entry, 20 cm. × 20 cm.

axis of the true bony pelvis. The posterior bladder mucosa and the anterior rectal mucosa are from 2 to 3 cm. distant from the cervical canal. If radium is inserted into the cervical canal, the time duration of the application depends entirely on the intensity of radiation striking the bladder or rectal mucosa. For instance, 50 mg. of radium element filtered through 1.5 mm. of brass and 3 mm. of pararubber, inserted into the cervical canal, will cause an erythema of the vesical mucosa and of the rectal mucosa within thirty hours. Since the lethal amount of radiation that the rectal mucosa will bear without any permanent injury is 130, if 100 means the intensity

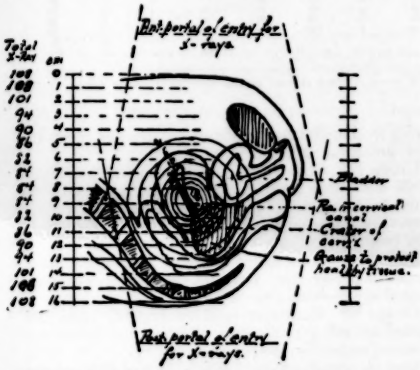

Fig. 2.—Median longitudinal section of pelvis, showing isodoses of radium capsule: column at the left gives total roentgen-ray intensities obtained for each centimeter of depth.

of the dose sufficient to produce an erythema skin dose, we cannot extend the application of 50 mg. radium element beyond thirty consecutive hours, if we wish to avoid ulcers and strictures of the rectum, and so forth. It is, therefore, seen that the extent of the action of radium rays must be limited if we wish to avoid irreparable injury to neighboring vital pelvic organs. However, in doing this the cancer elements lying near the bony pelvic periphery are not only not degenerated but stimulated to increased activity and proliferation by the so-called "stimulating dose" of rays.

Institutions possessing large amounts of radium have recognized this fact and have attempted to treat the peripheral regions through the suprapubic abdominal wall, using packs containing upward to 1 gm. of radium element. Recently, it was reported that this plan has been abandoned, being economically inadvisable. If radiation therapy is ever going to be available to all the sufferers from uterine cancer, a technic must be evolved which can be used in every hamlet of our country. We have been working on this problem for many years and we are convinced that by a combination of radium and roentgen radiations we may solve it. We possess an instrument which enables us to measure the intensity of radiation emitted from a Coolidge roentgen-ray tube. We found that with this instrument we could measure a quantity of irradiation, which applied through only two ports of entry under like conditions sends an intensity

TABLE 2.—INTENSITIES OF GAMMA RADIATIONS OF 50 MG. RADIUM ELEMENT CAPSULE: LENGTH, 3 CM.; FILTERS, 1.5 MM. BRASS, 5 MM. CELLULOID

Surface Roentgen-Ray Dose of 100 Equals F. S. D. Equals 425 Mg. Radium Element Hours (Friedrich)				
			Values in Mg. Ra. El. Hrs.	
Distance in Cm.	Percentage of Isodoses	Roentgen Ray Dose	Values	Round Numbers
1.5	40	100	425.0	400
2.3	20		212.5	200
3.4	10		106.3	100
4.7	5		53.2	50
5.6	2		21.3	21

Values of Gamma Radiation Expressed in Values of Roentgen Ray Dose for Various Distances and Time durations of Applications

Distance, Cm.	10 Hrs.	20 Hrs.	30 Hrs.	40 Hrs.	50 Hrs.	60 Hrs.	70 Hrs.	80 Hrs.
1.5	125.0	250.0	375.0	500.0	625.0	750.0	875.0	1,000
2.3	62.5	125.0	187.5	250.0	312.5	375.0	437.5	500
3.4	31.3	62.5	93.8	125.0	156.5	187.5	218.8	250
4.7	15.7	31.3	47.0	62.5	78.5	94.0	109.7	125
5.6	6.3	12.5	18.9	25.0	31.5	37.8	43.8	50

of about 75 per cent. of the surface skin intensity to the region of the cervix if the anteroposterior diameter of the pelvis is not more than 16 cm. (Fig. 1). Therefore, it is only necessary to supply the missing 25 per cent. with the use of radium radiation in order to obtain an intensity of 100 all through the pelvis. It being conceded that 100 represents the intensity of radiation necessary to produce an erythema skin dose, and it being further conceded that this intensity amply suffices to degenerate cancer cells. Fifty milligrams of radium element will accomplish this very nicely with a thirty hours' application. Patients with an anteroposterior diameter of more than 16 cm. from the anterior skin surface to the posterior skin surface require a longer continuous application, though we may cause severe injuries to the bladder and rectum with the larger doses (Tables 1 and 2).

TECHNIC

The technic of radiation treatment, therefore, consists in the combined use of roentgen and radium radiation. A solution of the problem is shown in Figure 2. It shows the intensity of measured rays at each point within the pelvis for roentgen rays, also the isodoses of gamma rays measured with a 50 mg. radium element capsule within water, thus indicating the total primary

and secondary radiations. The measured roentgen ray intensities also represent a summation of primary and secondary radiations. Table 1 indicates how unfavorably the summation of radiation becomes with an increase in the anteroposterior diameter above 18 cm. The greater diameters are found in obese and large boned women. To increase the radiation dose in such patients, we have of late applied roentgen rays through three portals of entry. The advantages thus gained are an increased roentgen ray intensity in the cancer area as demonstrated in Figure 3.

Should radiation treatment be combined with surgical procedure to increase the efficiency of either one? It has been proposed to precede panhysterectomies for cancer of the uterus with radiation therapy, obviously to degenerate the cancer first and thereby render safer the surgical procedure. To apply radiation properly, it is necessary to employ such an intensity of radiation that the periphery of the bony pelvis is struck with the same intensity as the region in the axis of the pelvis, that is, the cervix. Otherwise, the peripheral cancer cells are stimulated to increased proliferation. Such a radiation treatment always causes a decided radiation sickness. During this period the patient could not be safely subjected to the additional trauma and shock of a capital surgical procedure. The operation must be postponed for from three to six weeks, during which time the patient will have recovered from the radiation toxemia. If the operation is performed within a few days after radiation, the patient with an alarming frequency succumbs to sepsis and shock. Should the operation be postponed to a later period, the same danger is still present on account of necrosis of tissue in the cervical canal which cannot be avoided. These factors and the intense connective tissue formation in the parametrium, which renders hemostasis difficult, therefore do not let it appear advisable to resort to preoperative radiations.

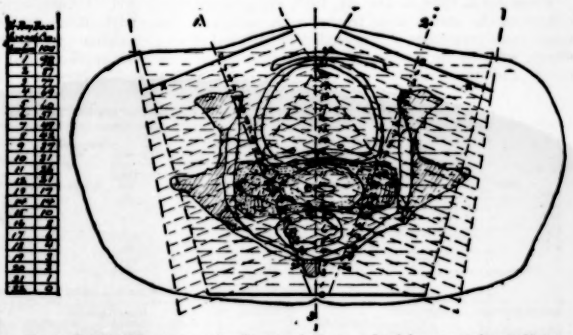

Fig. 3.—Patient with anteroposterior diameter of 25 cm. reduced by compression to 22 cm.; transverse diameter, 44.5 cm.; anterosuperior spinous processes, marked ×, 28.5 cm. Radiation beams 1 and 2 should be applied at an angle of about 55 degrees, so that axis is centered on cervix.

Dose at *a*: 21 + 21 + 21 = 63.
Dose at *b*: 42 + 8 + 8 = 58.
Dose at *c*: 31 + 26 + 8 = 65.
Dose at *d*: 31 + 8+ 26 = 65.
Dose at *e*: 31 + 14 + 14 = 59.

Dose at 18: 4 + 41* + 41* = 86.
Dose at 19: 3 + 48* + 48* = 96.
Dose at 20: 2 + 55* + 55* = 112.
Dose at 21: 1 + 55* + 55* = 111.

Dose if only one anterior median and one posterior median field is used:

At *a*: 21 + 31 = 52.
At *b*: 42 + 14 = 56.
At *c*: 31 + 21 = 52.
At *d*: 31 + 21 = 52.
At *e*: 31 + 21 = 52.

* Peripheral intensities are 20 per cent. less than those within a radius of 6 cm. Technic: Coolidge tube; 140 peak kilovolts; 5 ma.; 35 cm. focal distance; 10 mm. aluminum + 6 mm. sole leather filters.

It has been advocated to render inoperable carcinomas operable by radiation, as the latter causes an apparent resorption of the cancer tissue. The uterus and adnexa will appear freely movable and of normal size, shape, form and consistency. A panhysterectomy could be easily performed, though necrosis might still be present in the cervical canal and hemostasis be difficult of execution. Again it has been proposed to excochleate and cauterize the tumor bed. Radiation would then become more effective. However, my experience leads me to state that preradiation curettage and cauterization or postradiation panhysterectomy in the clearly inoperable cases render the patient's chances for even a temporary improvement in health decidedly worse. As a matter of fact, the rule is that patients of the borderline and inoperable groups, treated with a combination of radiation and surgery, quickly succumb either to sepsis or to a recurrence, in spite of the most carefully executed radiation treatment.

An active immunization is produced by the action of radium on malignant cells. If radium or roentgen rays would simply kill the cells, then they would not be superior to the knife or any cauterizing agent. But the cancer cells under the influence of rays are stimulated to produce a specific antibody for other similar cancer

RECURRENCES

Should a panhysterectomy for a clearly operable uterine carcinoma be followed by radiation to prevent recurrences? Recurrences result from carcinoma cells left behind during an operation. They are found either in the tissues surrounding the wound crater or at the periphery of the bony pelvis. The former are termed local and the latter regional recurrences. The very element rendering radium treatment of the cervical region possible without causing irreparable damage to the bladder and rectum, i. e., the uterus, has been removed by the operation. Radium rays could now be made effective only in the superficial tissues of the wound cavity and the vaginal fornix. Additional roentgen-ray radiation applied also will not enable us in conjunction with radium radiation to attain the uniform intensity all through the pelvis necessary for our purpose. Hence, I am more and more inclined to the opinion that the cancer must be clearly confined within the limits of the uterus, if operation is justifiable. Under these conditions, postoperative radiations are useless. If, however, an operation has been performed, and during its progress, it is found that the cancer has invaded adjacent structures, or the probabilities are that cancer tissue has been left behind, then a combined radiation treatment must be given. It must be as intensive as if the panhysterectomy had never been performed, regardless of the consequences to the patient. If we wish to be successful, we must treat the disease and not the patient.

cells in the tissues of the patient being treated. Morson, Wedd and Russ, Blumenthal and Behne have proved this contention in experiments carried on in animals as well as man. Hence, if living malignant cells are necessary for the production of an autogenous vaccine or antibody, a preradiation removal of cancer cells would not be advisable. The ray therapeutist also must prevent a too extensive destruction of normal and malignant tissues, and an insufficient modification or degeneration of malignant cells. If the treatment is too radical, antibodies necessary for the complete removal of all cancer cells are not produced. If too small, the action may arrest the growth for the time, but recurrences must be expected.

RESULTS OF TREATMENT

From April, 1914, to Dec. 31, 1919, 168 patients with cancer of the uterus were treated with radiation. In some cases treatment was preceded by surgical procedures, such as hysterectomy or cauterization, and in others, radiation was followed by hysterectomy. However, since 1918, radiations were used exclusively. We also must state that the technic of application of rays underwent a continuous evolution until the last two years when a technic had been evolved which has been described in this paper. I believe that with the development of larger Coolidge tubes which will stand higher voltages and of transformers which will furnish voltages up to 200,000, we will overcome the difficulties that exist in patients having a greater anteroposterior diameter than 18 cm.

Table 4 shows the number of patients treated each year, also the numbers surviving today and the number of those that have died or did not report. From the table it is seen that in Group I of a total of seven patients treated, five are living and well (71.4 per cent.). In Group II, of eleven patients, six are alive and well (54.5 per cent.). In Group III, of sixty-eight patients, nineteen are alive and well (27.9 per cent.). In Group IV, of thirty-six pateints, one is alive (2.5 per cent.). And in Group V, of forty-six patients, one is alive (2.2 per cent.).

Surgery alone probably would have produced the same good results shown in Group I. We must, however, credit ray therapy for all permanent and even temporary benefits in the other groups. That implies that of 161 patients in these groups, twenty-seven are well today that otherwise would probably have succumbed to the disease (16.8 per cent.). The total percentage of apparent cures in 168 cases is 19+. It also implies that the earlier a patient with carcinoma of the uterus is treated with radiations, the better will be the prognosis for an apparent or ultimate cure.

CONCLUSIONS

The conclusions drawn from this study are:

1. Prophylaxis plays an important factor in the treatment of cancer.

2. Classification of uterine carcinomas is of paramount importance to separate localized from the more advanced cases.

3. Localized carcinomas must be treated by surgical methods, preferably with the use of the actual cautery, while the borderline and advanced cases should be referred to ray therapy.

4. A combination of surgery with radiotherapy is not advisable. However, a combination treatment of gamma and roentgen rays assures better results than the application of either agent alone. The radium must be inserted into the cervical canal, while the roentgen rays are applied through the suprapubic and sacral regions. This also renders the treatment available for all classes of patients, owing to the lessened expense.

5. It is hoped that with an improvement in the technic, permanent recoveries will become more numerous.

25 East Washington Street.

TABLE 3.—END-RESULTS OF UTERINE CANCER TREATED WITH RADIUM

Year	Operable Total No.	Operable Living	Operable Died or No Report	Borderline Total No.	Borderline Living	Borderline Died or No Report	Inoperable Total No.	Inoperable Living	Inoperable Died or No Report	Terminal Total No.	Terminal Living	Terminal Died or No Report	Recurrent Total No.	Recurrent Living	Recurrent Died or No Report
1914	2	1	1	2	1	1	12	..	12	1	..	1	4	..	4
1915	..	..	..	2	1	1	9	..	9	6	..	6	9	..	9
1916	1	1	..	1	..	1	8	..	8	6	..	6	7	..	7
1917	..	..	..	1	1	..	8	4	4	4	..	4	3	..	3
1918	2	1	1	3	2	1	9	6	3	8	..	8	8	..	8
1919	2	2	..	2	1	1	22	9	13	11	1	10	15	1	14
Total	7	5	2	11	6	5	68	19	49	36	1	35	46	1	45

Percentages of Apparent Cures for 2, 3 and 5 Year Periods

1914 to 1919 incl.	Operable 7	Borderline 11	Inoperable 68	Terminal 36	Recurrent 46
	Living 5 = 71.4%	Living 6 = 54.5%	Living 19 = 27.9%	Living 1 = 2.5%	Living 1 = 2.2%
1914 to 1918 incl.	Operable 5	Borderline 9	Inoperable 46	Terminal 25	Recurrent 31
	Living 3 = 60.0%	Living 5 = 55.6%	Living 10 = 21.7%	Living 0 = 0.0%	Living 0 = 0.0%
1914 to 1916 incl.	Operable 3	Borderline 5	Inoperable 29	Terminal 13	Recurrent 20
	Living 2 = 66.6%	Living 2 = 40.0%	Living 0 = 0.0%	Living 0 = 0.0%	Living 0 = 0.0%

Sex Education in Educational Institutions.—The returns from 65 per cent. of the normal schools in the United States show that 75 per cent. are doing some work in sex education and that 92 per cent. of the principals think that work should be given. The opposition seems at least in some cases to be due to wrong interpretations of the work. Our boards of education have done comparatively little, though three states are giving some organized work and five states are considering more. New England educators, as represented by normal school principals, are more opposed to than in favor of this work. The rest of the United States is more in favor than opposed, the degree varying. The western states favor it most; the southern states in a slighter degree than the central and middle Atlantic states. That sex education will be organized is inevitable. Why delay it for years, when with a thorough study of a method of instruction it might be introduced into the curriculum of our training schools? With the teachers prepared in this work, the boards of education could consider more seriously the question of sex education in the public and high schools. In the meantime, there is need for the training of teachers in the subject and the extensive education of the public to the need of sex instruction.—V. H. Harris, *Social Hygiene* 7:180, 1921.

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IRRADIATION IN CANCER OF THE FEMALE GENITO-URINARY ORGANS

RESULTS IN THREE HUNDRED AND THIRTEEN CASES *

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AND
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From time to time during the last five years we have recorded in the current medical periodicals our results from the treatment of cancer of the pelvic organs with radium, particularly of the uterus, and in these articles we have dwelt especially on the palliative effect of irradiation rather than to hazard a discussion as to the possibilities of ultimate cures, notwithstanding the justifiable hopes as to this outcome. We have maintained this position because of the skepticism which the world holds as to the settlement of this age-long quest for a dependable remedy for cancer. Today we may assert with positive assurance that even in the inoperable case of cancer of the cervix a surprising number, as reckoned by the quinquennial test, have survived and are quite free from any demonstrable or symptomatic evidence of cancer. Those patients that are alive and well were registered in our clinic in the first years of our use of radium, while methods were largely in the proving ground, for we then knew little of the dangers and range of action of this occult force. In view of the fact that these cruder attempts have yielded a definite percentage of cures, we feel greatly encouraged; for with improvements in application and with a consequent lessening of bad sequelae, a decidedly better outcome may be forecast as these later series come up for review. In order that there should be no conflict in our report between the more recent and the older cases, we have included only those treated before August, 1920, thus leaving out of count the clinical product of the past year. Our report deals with a total of 313 cases; 112 of the patients are living and 201 dead.

TABLE 1.—DIAGNOSIS

	Patients Living	Patients Dead
Carcinoma of cervix	66	148
Carcinoma of fundus	12	11
Chorio-epithelioma	2	..
Carcinoma of cervical stump	4	..
Recurrent carcinoma of vagina after hysterectomy	7	14
Epithelioma of vagina	4	13
Carcinoma of urethra	2	4
Carcinoma of bladder	1	2
Operation and radium	10	4
Miscellaneous	4	5
Total	112	201

METHOD OF TREATMENT

All of our patients have been subjected uniformly to 100 mg. of radium for twenty-four hours at the first application, and this dosage may therefore be considered as the standard to which we have adhered, with only an occasional exception in more than 400 cases treated up to date. We have purposely held to this standard because the primary results in our first 100 cases appeared to be so satisfactory in promoting relief of the chief symptoms of cancer that it seemed injudicious to change it radically. As several workers in irradiation have used different dosages, both as to quantity, duration of application, and repetitions of treatments, and since we are all in accord as to the primary palliative results, it seemed best for us to pursue in our clinic this course so that when we all assemble our reports in critical review, we may judge as to the best way of synchronizing methods and arriving at a uniform plan of action among those clinics in which the larger and smaller quantities are respectively available.

TABLE 2.—CARCINOMA OF CERVIX

	Patients Living	Patients Dead
Hemorrhage:		
Complete relief	51	84
Temporary relief	4	13
Not stated	2	49
Not traced	9	2
No effect	..	..
Total	66	148
Leukorrhea:		
Complete relief	37	46
Temporary relief	3	..
No effect	5	19
Increased	..	2
Not stated	12	81
Not traced	9	..
Total	66	148
Pain:		
Relieved	21	40
Unrelieved	3	30
Pain caused by radium	3	..
Pain not present	30	..
Not traced	9	..
Not stated	..	78
Total	66	148
Bladder irritability after irradiation	4	8
Rectal irritability after irradiation	2	7
Both	..	1
Fistulas:		
Vesicovaginal	2	5
Rectovaginal	1	7
Both	3	7
Local healing	42	51
Alive:		
1 year	7	
1 to 1½ years	9	
1½ to 2 years	4	
2 to 2½ years	9	
3 to 4 years	10	
4 to 5 years	6	
5 to 6 years	7	
6 to 7 years	2	
Traced less than one year	3	
Not traced	9	
Total	66	
Died:		
Under 6 months		44
6 months to 1 year		42
1 to 1½ years		21
1½ to 2 years		10
2 to 2½ years		11
2½ to 3 years		5
3 to 4 years		3
4 to 5 years		3
5 to 6 years		1
Not stated		8
Total		148

Our plan through at least 150 cases was to apply 100 mg., contained within a glass capsule and this in a platinum tube, and this in turn enclosed in black rubber tubing, for twenty-four hours in immediate contact with the cervix, the healthy adjacent tissues being shielded from undue injury with lead protectors. After a six weeks' interval, this procedure was repeated. As to the results, we found that several patients sustained burns of sufficient intensity to cause much irritability of the bladder, or an acute proctitis occasionally causing pain varying from a mild and fleeting character to that of severe and persistent intensity. While this was by no means a uniform sequel, it occurred with sufficient frequency to be a decided disadvantage and a trying and discouraging ordeal for the patient. Added to this immediate effect came the later and much graver complication, an occasional vesical or rectal fistula, and these are always obstinate or even intractable to healing either by operation or through the expectant policy.

Among our living patients, 112 cases, thirteen have had fistulas; of the 201 dead, twenty-one were noted sooner or later before death. As to the living patients,

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

we attribute practically all to the effects of irradiation, but this acknowledgment does not constitute a condemnation but a warning, to which we shall refer later. Among the 201 dead patients, we consider only twenty-one fistulas, approximately 10 per cent., as a definite triumph for irradiation; for among those who ultimately succumbed there were sixty in whom the local healing was maintained to the end, the patients dying

TABLE 3.—CARCINOMA OF FUNDUS

	Patients Living	Patients Dead
Hemorrhage:		
Complete relief	7	5
No effect	1	..
Temporary relief	1	..
Not stated	2	..
Not traced	1	..
Total	12	5
Leukorrhea:		
Complete relief	5	..
No effect	1	..
Not stated	5	..
Not traced	1	..
Total	12	3
Pain:		
Relieved	2	..
Unrelieved	..	1
Not stated	9	..
Not traced	1	..
Total	12	1

Alive:		Died:	
1 year	2	Under 6 months	1
1 to 1½ years	3	6 months to 1 year	5
2 to 2½ years	1	1½ to 2 years	1
2½ to 3 years	1	2 to 2½ years	1
3 to 4 years	1	No date	3
4 to 5 years	1	Total	11
5 to 6 years	1		
Not traced	1		
1½ to 2 years	1		
Total	12		

of metastases. The assertion that had the same number of inoperable cases reached the end without irradiation, fistulas in a considerably larger percentage should have been a natural incident of the cancerous invasion of the bladder or rectum, does not appear as questionable but rather the statement of a fact. Our position, therefore, is that while radium actually does produce fistulas in a small percentage of patients, on the whole it actually defends a much larger ratio against this complication.

TABLE 4.—CHORIO EPITHELIOMA (Patients Living)

Hemorrhage (complete cessation)	2
Local healing	2
Alive 6 to 7 years	2

To remain contented with this adjustment of equations is, however, not our desire, and to obviate this very disabling accident, we have completely discarded all metal protectors in vaginal applications, and instead use gauze packing (Fig. 1). For this suggestion, we are indebted to Dr. Burnam. By far the larger number of fistulas date back to the period of lead protectors; but with our present plan we have much less apprehension as to this possible complication. Thus we mark as a first departure from our original standard of application the casting into the discard of metal protectors. A second, and we believe a very important conviction, we have arrived at through our experience. Here, as in all other successful therapeutic methods, the rule of thumb is hazardous. By no acuteness of perception on our part, but through the apparent stupidity of a few patients who, regardless of grave warnings as to the dangers of procrastination, delayed reporting for a second treatment, we have discovered that in a considerable proportion of cases the lethal blow to cancer of the cervix is given by the first impact of the radium, and the question has arisen, Do repeated applications make assurance doubly sure, or may they not occasionally jeopardize a successful issue?

We are not fully prepared to answer this query, but we are convinced that the routine repetition of treatments is injudicious without taking into full account the results of the first treatment. For instance, in one class of cases, in which the patients reported six weeks after the initial application, we find remarkable local healing in process of completion; in another the ulceration appears to be in statu quo, while in a third no apparent beneficial effect is evident; on the

TABLE 5.—CARCINOMA OF CERVICAL STUMP (Patients Living)

Hemorrhage (complete cessation)	2
Not stated	2
Leukorrhea:	
Complete relief	2
Not stated	2
Total	4
Bladder irritability after irradiation	2
Local healing	2
Alive:	
1½ to 2 years	2
3 to 4 years	2
Total	4

contrary, a definite failure to hold in check the ulceration is obvious. In the occasional case, we believe that there is an actual acceleration of the growth. Thus, of the 201 dead patients, fifty-nine had reached the end within six months after the application of radium, a frequent experience after radical operations.

To utilize this observation as a proof of actual acceleration of the malignant growth depends, not on the failure of radium to destroy at least a portion of the

TABLE 6.—RECURRENT CARCINOMA OF VAGINA AFTER HYSTERECTOMY

	Patients Living	Patients Dead
Hemorrhage:		
Complete cessation	7	7
No effect	..	2
Not stated	..	5
Total	7	14
Leukorrhea:		
Complete relief	5	3
No effect	1	6
Not stated	1	5
Total	7	14
Bladder irritability after irradiation	1	..
Rectal irritability after irradiation	1	..
Pain:		
Relieved	..	2
Unrelieved	..	6
Not stated	..	6
Total	..	14
Fistulas:		
Vesicovaginal	1	1
Rectovaginal	1	2
Local healing	3	3

Alive:		Died:	
1 year	1	Under 6 months	8
1½ years to 2 years	1	6 months to 1 year	3
2 to 2½ years	1	1 to 1½ years	3
2½ to 3 years	2	Total	14
3 to 4 years	1		
4 to 5 years	1		
Total	7		

cancer, for this it invariably does, but on the fact that the growth is so widespread that cancer cells outside the zone of effective action may actually be stimulated to a more rapid proliferation and thus quickly obscure any possible beneficial effect at the point of intensive contact. We are, therefore under the impression that a certain number of patients receive no beneficial effect from irradiation, and hence we are inclined to limit its

employment to those cases in which there is a visible or palpable localization of the gross changes.

When there is a deep crater occupying the site of the lower uterine segment and extending out to the pelvic walls and backward and forward to the vesical and rectal walls, with grave cachexia and other evidence of metastasis, we may by this treatment actually render more wretched the few remaining weeks of existence of these patients. Also, when there are fixed pelvic masses extending out to the iliac walls, very seldom can anything be accomplished, for the destructive changes are too far removed from the focus of irradiation for even palliative measures. As we are not employing the emanations, we cannot speak as to results in these cases when the glass tubes are embedded in the malignant mass.

In those cases in which a progressive favorable action is noted six weeks after the initial treatment, not infrequently the patient is advised to return again in six weeks, and if then we find a white hyaline cicatrix fully covering the site of the ulcer, we further delay action and may not see the patient again for six months.

In the second class of cases in which no progress is noted, we usually make one more application and await the turn of events at the end of another six weeks' interval. At that time should no progress be noted, further irradiation is abandoned, for we class such cases as hopeless.

Within our knowledge, no favorable turn has been noted from a third application if the first two are unsuccessful. To repeat the treatments only adds to the patient's distress. Here, as is observed with any operation in the hopeless case, the remedy may be severely condemned, thus generating a prejudice among the friends or family of the patient which may subsequently block its use in some other favorable case.

Another modification in our method of application deserves especial mention. In the first three years of our experience, we were content to make the application without the aid of an anesthetic. A bit of tissue was snipped off or gently curetted away for confirmative diagnostic purposes, and the radium was then applied, usually with the patient in the knee-breast or Sims posture. Under these conditions, it was frequently difficult to adjust the radium tube accurately to the affected area. In applying the metallic vaginal shields, or as in later cases, the gauze pack, the tube might shift and thus cause trouble. To obviate these dangers and to be certain of a complete orientation at the first sitting, nitrous oxid anesthesia is administered. If there is a large cauliflower mass it is excised by the cautery. By this procedure, radium may be brought one or more inches nearer the crucial area, thus securing full contact and avoiding the rapidly lessening effect of the intensive irradiation as the distance is increased (Fig. 2).

Further, when possible we always insert a 50 mg. tube within the cervix and a cross contact tube of equal quantity in the cervical crater or vaginal vault. Not infrequently a superficial conelike incision is made with the cautery, avoiding a deep penetration into healthy tissues, and the radium tubes are enclosed within this cup with fine catgut sutures (Fig. 3). At a six weeks' interval a second contact application of 100 mg. is made in the vaginal vault. As to the use of radium needles, our experience is as yet too limited to warrant any positive assertion as to their value in cervical cases, but we anticipate a betterment of statistics from this source of deeper irradiation. Since cancer extends by the broad and uterosacral ligaments, we not infrequently insert four needles of about 13 mg. each into these structures (Figs. 4 and 5). Obviously, the danger of injuring the rectum or perforating Douglas' culdesac attends the penetration of the utero-sacral ligaments, while the ureters or uterine vessels are jeopardized in the broad ligaments. Through the guidance of the needle with one finger in the rectum, and directing the needle slightly posteriorly and outward in the broad ligaments, these dangers may largely be obviated. At least, thus far we have had no unhappy encounters of this nature.

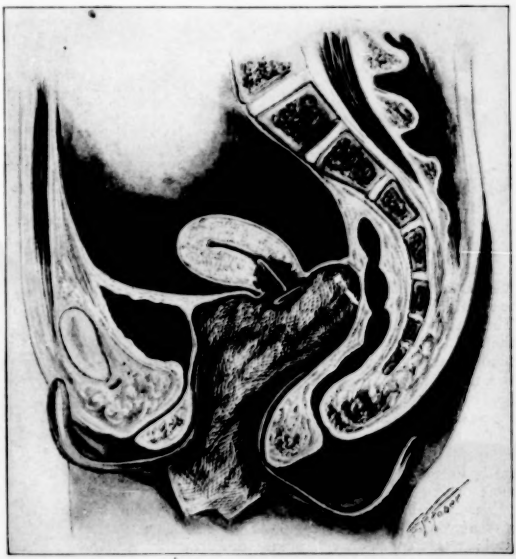


Fig. 1.—Voluminous gauze packing placed with the aid of Sims' specula in such a way as to press the rectovaginal wall backward and the vesicovaginal wall forward out of harmful contact.

TECHNIC OF APPLICATION

Patients are prepared as usual for gas anesthesia, a hypodermic of morphin, one-fourth grain, and atropin sulphate, $\frac{1}{150}$ preceding the operation by one-half hour. The patient is prepared as for a plastic operation on the cervix, care being observed not to traumatize unduly the carcinomatous area in the cleansing process. Then a complete examination by vagina and rectum is made in order to determine the extent and

character of the growth. If there is a cauliflower mass, it is removed with the cautery and not the curet. Too much stress cannot be laid on the dangers of harsh manipulative use of the curet, or excision of tissue with the scalpel in the advanced cases. When there is a crater, we never use the curet or even the cautery.

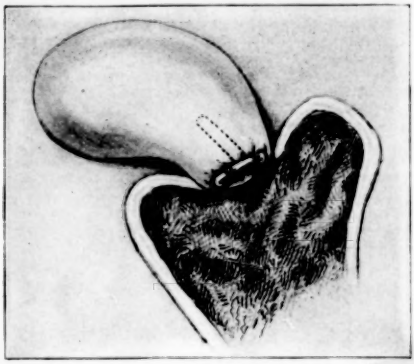


Fig. 2.—In the usual case without cauliflower excrescence, one tube is inserted within the canal and a second held in crosswise contact held with a fine catgut suture.

When the case is of the cauliflower type, the superficial mass is removed only down to the cancer base in order to reduce the distance to the frontier zone of infiltration. The cervical canal is dilated if it is discoverable, and the first tube of 50 mg. of radium salt in black rubber tubing is inserted into the uterus. On the vaginal portion of the cervix or within the crater a similar tube is held by fine catgut sutures. If it is desirable to employ the needles, they are inserted into the appropriate areas, as described above, not more than 1 inch in the broad ligaments and approximately 1½ inches in the uterosacral ligaments. It is necessary to make this maneuver more or less blindly, the sense of touch being our only guide. The Lee type of needle is used, screwed to a staff of about 3 inches in length. The posterior vaginal wall is retracted well back from the cancerous area with a long Sims speculum, likewise the anterior vaginal wall toward the symphysis. Thus the posterior vaginal wall and rectum may be pushed 1 inch or more back toward the hollow of the sacrum, and the vesical wall is removed almost as far from harmful effects. This we consider a capital method for preventing an irradiation proctitis or cystitis, with the attendant hazards of fistulas.

In cancer of the fundus, we always incline even in advanced cases to operation. In this connection, we simply reiterate what has been said in previous articles: "In cancer of the cervix, when in doubt always irradiate; in cancer of the fundus, when in doubt operate." However, in cancer of the fundus, when there are grave contraindications to surgical intervention, we turn to radium with great hope when the case is within reasonable limits. In our list of 313 cases, there have been only twenty-three cases of cancer of the fundus. Of these, twelve patients survive from three to six years without objective symptoms or demonstrable lesions. The remainder are below a three-year limitation but are in excellent health. In eleven cases which were far advanced when treatment was given, the patients are dead, but there were none of these within the potentialities of the most daring surgeon.

How does healing take place in cases of cancer treated by radium? As we see the factors in this process, we summarize them as follows: First, local destruction, then a considerable fibrous tissue formation with an ultimate condensation cicatrix followed by more or less hyalization. To the latter processes, we attribute the chief possibilities of a cure. To thrive, cancer requires vascularization on its frontier zone. A hyaline or fibrous barrier is, therefore, an effective block against the invasion of new blood vessels and serves excellently in the process of incarceration or segregation of malignant cells.

In McCarty's discussion before the last meeting of the Southern Surgical Society, he laid special emphasis on the beneficence of the latter processes in the retardation or starving out of cancerous growths. To this theory we offer hearty support. A very telling instance to sustain this point is found in one of our cases of carcinoma of the vagina in which there was almost a complete atresia at the time of the first treatment, and yet the patient is alive and well after nearly five years. When first seen we considered the case hopeless. One hundred milligrams of radium divided between two tubes were inserted tandem fashion into the narrow vagina and were left in place twenty-four hours. One year later, on the patient's return, there was a complete cicatricial occlusion of the vagina. At the introitus there was a slight carcinomatous ulcer surrounded by a hyaline fibrous circle. We were so fearful of breaking down this area by further irradiation, with resultant

Fig. 3.—Area of excision with the cautery knife marked with triangular converging lines. After this cervical cone is removed, one 50 mg. tube is inserted in the cervix and a second is placed crosswise within the crater. The two flaps may then be closed with fine catgut sutures, thus holding the tubes in a secure place where their maximum force may safely be expended.

rectal and vesical fistulas, that we removed a small bit of tissue for confirmative diagnosis and advised against any further treatment. One year later all traces of the

cancer had disappeared, and the patient is now nearing the completion of her five-year period quite free from any trace of cancer.

This is but one instance of many which sustain our argument against operation after successful irradiation in a previously inoperable case. Logically, a surgeon

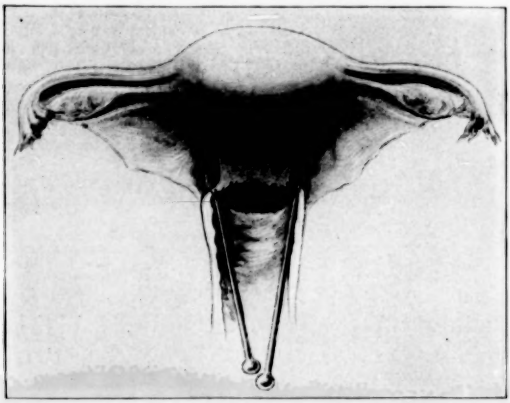


Fig. 4.—Radium needles inserted about 1 inch into the parametrium. In introducing these needles a point is selected lateral to the cervix and slightly posterior to a midtransverse line of the cervix. By observing this precaution the ureters and uterine blood vessels are in less hazard.

cannot remove tissue outside the operable area, and to break down these barriers and open up fresh tissue with the possible release of imprisoned cells may actually lead to the worst results. We have found no evidence whatever to incline us toward surgical intervention after successful irradiation, but quite positively in the contrary direction. Finally, what is, our attitude concerning immediate anteoperative irradiation? From dire experience we have definitely discarded this plan, and while this decision is based on a very limited experience, it was, nevertheless, an alarming one.

The bad results occurred in two cases of high amputation of the cervix a day or two subsequent to a twenty-four hour irradiation. For a few days, a splendid convalescence followed; then an ugly infection with widespread disintegration developed in the operative area. One patient died of a slow but progressive pyemia; the other passed through a stormy convalescence, but finally recovered. To devitalize tissues invaded with septic bacteria, which are not destroyed before surgical intervention, makes indeed a bad outlook for the surgeon. Possibly a very evanescent irradiation of from four to six hours in order to blight only the superficial areas and not the deep tissues might be effective in reducing implantation possibilities. Beyond this, however, we enter a zone of deepening shadow. In the event of a hysterectomy being performed, we prefer to irradiate from fourteen to twenty-one days later, after the surgical cicatrix in the vagina is fixed, and then under careful protection and only for twelve hours.

As will appear in our statistical tables, the percentage of patients suffering from inoperable carcinoma of the cervix and yet living without evidence of cancer from three to four years on to six and seven years is 24 per cent. Without doubt, no other method of treatment attended with so little danger can show such excellent results. In all of our series of cases, now more than 400, only two deaths occurred shortly after irradiation alone. A few years ago one of us reviewed the final results in fifty-nine cases of radical operation for cancer of the cervix, and the yield of quinquennial cures was about 33 per cent.

In comparing the vast outlay of surgical effort put forth in the latter class of cases with the great dangers attending the radical operation, as to both mortality and disabling results, we feel convinced that the time has about, if not quite, arrived when we shall cease to speak of any operable cases of cancer of the cervix but shall submit them all to irradiation. Certainly our results have led us very convincingly in this direction. As the palliative results have been so excellent and, as our statistics now appear, the actual cures have been so relatively large in the hopeless cases, it would appear illogical to submit the early, operable case to the great dangers of surgical intervention and reserve only the inoperable case for irradiation. While we still discuss operability, we are indeed turning to this method of procedure in such a small minority of cases in our clinic as to carry our statistics in this line almost to the vanishing point.

In two other classes of cases we have employed irradiation with great reluctance; and yet, as our sta-

Fig. 5.—Lateral view of needles inserted in the sacral and broad ligaments.

tistics will show, this pessimism is unjustifiable. From the anatomic standpoint, the hazards of fistulas are much greater when radium is employed in cases of recurrence in the vaginal vault after hysterectomy. Of this class there have been twenty-one cases, in seven of

which the patients are living, five being alive over two years. Of these, one has passed the three to four year period. Of the seven living, two have fistulas. Among the fourteen fatal cases, there were three fistulas.

TABLE 7.—EPITHELIOMA OF VAGINA

	Patients Living	Patients Dead
Hemorrhage:		
Complete relief	4	4
No effect	..	1
Temporary relief	..	3
Not stated	..	4
Total	4	13
Leukorrhea:		
Complete relief	3	2
No effect	..	3
Increased	1	1
Not stated	..	7
Total	4	13
Pain:		
Relieved	1	..
Unrelieved	..	2
Not stated	3	11
Total	4	13
Rectal irritability after radium	..	1
Fistulas:		
Rectovaginal	..	3
Local healing	..	4
Total	..	7

Alive:		Died:	
1 to 1½ years	1	Under 6 months	5
1½ to 2 years	1	6 months to 1 year	3
3 to 4 years	1	1 to 1½ years	3
4 to 5 years	1	1½ to 2 years	1
Total	4	2½ to 3 years	1
		Total	13

TABLE 8.—CARCINOMA OF URETHRA

	Patients Living	Patients Dead
Hemorrhage:		
Complete relief	2	3
No effect	..	1
Total	2	4
Leukorrhea:		
Complete relief	..	2
Increased	2	..
Not stated	..	2
Total	2	4
Pain:		
Unrelieved	..	2
Not stated	..	2
Total	..	4
Fistulas:		
Rectovaginal	1	..
Vesicovaginal	..	1
Vesicorectovaginal	..	1
Total	1	2

Alive:		Died:	
1 to 1½ years	1	6 months to 1 year	1
5 to 6 years	1	1 year to 1½ years	3
Total	2	Total	4
Local healing			2

From these observations our apprehension as to fistulas is confirmed, for this class of case will undoubtedly be followed by a larger percentage of fistulas, another very telling argument against a hysterectomy in the borderline case if irradiation is subsequently to be resorted to.

This brings up the question, Should the surgeon resort to an operation in the questionable case, and then depend on irradiation to aid him? To act in the affirmative, we believe, is not only an unwise but a positively dangerous course. While an irradiation subsequent to a hysterectomy may save the day, it may leave in its train a distressing and possibly hopeless fistula. We cannot too urgently advise against this course. When the uterus remains as a broad wedge of tissue keeping the bladder and rectum well apart and the domelike vault of the vagina preserved, with the carcinoma held centrally between the broad ligaments, the opportunity for successful work by the radiologist is greatly enhanced. When a hysterectomy is performed, these elastic tissues may retract to the iliac walls and thus remove the cancer outside the zone of safe irradiation.

A second class of cases in which cancer of a cervical stump has occurred, either by an oversight at the first operation or possibly by a subsequent invasion of the stump. Four such cases appear in our series, and all the patients are alive, two one and one-half to two years, and two three to four years after treatment. Is it likely that an excision of such an invaded stump could give as good or better results? Several other obvious facts will appear in our statistical tables which we will not refer to here.

To the energy of Mr. Ramsey, a junior medical student in the University of Pennsylvania, we are indebted

TABLE 9.—CARCINOMA OF BLADDER

	Patients Living	Patients Dead
Hemorrhage:		
Complete relief	1	1
Not stated	..	1
Pain:		
Relieved	..	1
Not stated	1	1
Fistula (vesicovaginal)		..

Alive:		Died:	
4 to 5 years	1	Under 6 months	1
		6 months to 1 year	1

TABLE 10.—SUMMARY, LIVING PATIENTS

Hemorrhage:		
Complete relief	78	
Temporary relief	5	
Not stated	3	
Not traced	11	
No effect	1	
		98
Leukorrhea:		
Complete relief	54	
Temporary relief	4	
No effect	7	
Not traced	11	
Not stated	22	
		98
Pain:		
Relieved	24	
Unrelieved	3	
Pain caused by radium	3	
Pain not present	30	
Not traced	11	
Not stated	27	
		98
Bladder irritability after irradiation		7
Rectal irritability after irradiation		4
Fistulas:		
Vesicovaginal	4	
Rectovaginal	3	
Both	3	
		10
Local healing		49
ALIVE		
1 year	10	
1 to 1½ years	14	
1½ to 2 years	8	
2 years to 2½ years	11	
2½ to 3 years	3	
3 to 4 years	15	
4 to 5 years	10	
5 to 6 years	9	
6 to 7 years	4	
Traced less than one year	3	
Not traced	11	
		98
LIVING		
Traced	87	
Not traced	11	
Miscellaneous	4	
Operation and radium	10	
		112

for tracing out the lost cases which did not return in response to our follow-up appeals. In his conversations with some of these patients, who are now quite well, he found that one asserted that she had been cured by Christian science, one by divine healing, and one by

cancer medicine. Now that they are well, we yield them reluctantly to their delusions. Such cases point also to the fallacy of statistics. It is our custom, when we are unable to follow our cases, to throw the history into the discard, leaving these cases out of court as to a final judgment as to results. Through carelessness or indifference or because a patient may have sworn allegiance to strange gods antagonistic to medicine, some of the most favorable cases may appear in the lost column. By the system of personal investigation and interview, our ratio of living patients has been raised materially.

CONCLUSIONS

1. Radium in 100 mg. amounts will yield most gratifying results if properly applied.

2. To pursue a set course without variation in the frequency of treatments regardless of the progress of the healing is hazardous.

TABLE 11.—SUMMARY (Patients Dead)

Hemorrhage:		
Complete relief	104	
No effect	6	
Temporary relief	16	
Not stated	66	
Miscellaneous	5	
Operation and radium	4	
		201
Leukorrhea:		
Complete cessation	56	
No effect	28	
Increased	3	
Not stated	105	
Miscellaneous	5	
Operation and radium	4	
		201
Pain:		
Relieved	43	
Unrelieved	41	
Not stated	108	
Miscellaneous	5	
Operation and radium	4	
		201
Bladder irritability after radium		8
Rectal irritability after radium		10
Fistulas:		
Vesicovaginal	7	
Rectovaginal	12	
Both	2	
		21
Died:		
Under 6 months	59	
6 months to 1 year	55	
1 to 1½ years	30	
1½ to 2 years	12	
2 to 2½ years	12	
2½ to 3 years	6	
3 to 4 years	3	
4 to 5 years	3	
5 to 6 years	1	
Date not stated	11	
		201
Local healing		60

3. To attain the best results, the first irradiation should be done under nitrous oxid anesthesia, as a more careful examination may be made, and the radium more advantageously brought in contact with the malignant areas either through radium tubes or by radium needles. Gauze packing instead of metal shields should be used for protective purposes.

4. The process of cure passes through three stages: local destruction, connective tissue formation, and hyalinization.

5. A hysterectomy after successful irradiation of an otherwise inoperable case is hazardous and does not promote the best interests of the patient.

6. Results of irradiation in cancer of the cervix practically remove this class of cases from the surgical field, although we have not yet completely yielded this point.

7. Cases of cancer of the fundus, unless too far advanced, or unless there is a critical surgical contraindication should be submitted to hysterectomy, followed from fourteen to twenty-one days later by a light irradiation of the vaginal fornix.

8. Irradiation is dangerous immediately before or soon after an operation, or when employed in fresh operative fields.

9. Frequent repetitions of irradiation are probably unnecessary and possibly hazardous, as the foregoing observations point to the fact that the chief blow is struck at the first application.

10. The frequency of irradiation fistulas may be reduced to a minimum or almost completely avoided by the application of a well placed vaginal pack which removes the healthy tissues from the zone of intensive emanations.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DUNCAN, SCHMITZ, AND CLARK AND KEENE

DR. WILLIAM P. GRAVES, Boston: The propaganda of general public education, though still inadequately organized, has been noticeably successful in teaching women to consult their physicians earlier in the course of the disease, while the country practitioners and family physicians are recognizing sooner symptoms which formerly many of them advised their patients to disregard. A source of encouragement is the wonderful good that radium is doing in the palliative treatment of incurable cases. If radium had never cured a case of cancer, and if it should never cure a case, its value in alleviating the suffering of cancer has already been an inestimable boon to the human race. I rarely see a case so bad that we cannot greatly help the patient, often for long periods of time. The only problem now is that which relates to the proper treatment of operable cases, and in this connection it is necessary to define what we mean by the term operable. Formerly an operable case might be defined as one in which it was possible to extirpate the uterus and diseased cervix without killing the patient and without causing injury to the neighboring organs. With the advent of radium, even the most enthusiastic operators have modified their definition of the word operability. In deciding the question of operation in a given case, the query that the surgeon puts to himself is not, "Can I take that uterus out and not injure the patient?" but rather, "Can I cure the patient by an operation?" We should, therefore, perhaps give up the word operability in estimating our cases of cervical cancer and use the expression curability by operation. The problem in which we are at present most interested is whether to operate in a case curable by operation or whether it is justifiable to rely on the simple method of applying radium. I have been a supporter of operation in these cases. Our results in this community at least do not warrant the severe condemnation that has recently been vented on the operative treatment of cervical cancer.

DR. A. J. OCHSNER, Chicago: For many years I used the actual cautery in cases of carcinoma of the cervix, using a cautery iron of large size because it would carry the heat far beyond the point of cauterization. During the last four years since Dr. Schmitz began to treat my cases of cancer of the uterus with radium, I have reduced the number of operations. This year I have not operated in a single case of carcinoma of the cervix. The patients have all been treated with radium. The reason for doing this is this: We found among our cauterization cases many in which there was glandular involvement far beyond the reach of heat; in cases that seemed incurable the patients remained well for many years—some as long as twenty years. Undoubtedly the reason for this lay in the fact that the carcinoma in the distant glands was destroyed by the natural ability of human tissue to destroy the cancer microbe. In all probability many of the cancer microbes which are located in the glands at a considerable distance from the original cancer are destroyed directly by the radium. Dr. Schmitz advises the removal of portions of the cancer for microscopic examination. My experience has been that when portions of tissue were removed for diagnostic

purposes the patients died of metastatic cancer. There is a great difference between involvement of the glands from cancer microbes which start from the cancer substance itself and those that are set free by the knife. Portions set free by the knife are put directly in the lymphatic circulation, and they will travel much farther than those that are set free by themselves in the growth of cancer, because the incision removes the barrier that nature has placed for the protection of the patient. Consequently, if one removes portions for microscopic examination this should be done in a manner to seal the lymphatics, namely, preferably by means of the electric cautery. The application of radium in sensitive patients can be done comfortably and safely under spinal anesthesia with procain. It does not frighten the patient, as a general anesthesia will, and it makes the patient perfectly comfortable for several hours after the application of the radium. I am sure that radium has come to stay. I have mentioned the cancer microbe several times. I wish to state that Dr. John Nuzum has isolated the cancer microbe and has produced cancer from pure cultures of a specific microorganism in many cases.

DR. FRED J. TAUSSIG, St. Louis: The interesting statistics of Drs. Clark and Keene might perhaps give the impression that there is such a thing as a routine method of application in these cases of cancer of the cervix. I hope that none of you will have that impression, because radium treatment of cancer of the cervix is just as manifold and difficult as a plastic operation. In every instance there must be a different method of application, a different filtration and a different total dosage. However, certain principles should be maintained. The treatment should be concentrated at the first application. The unfiltered radium should be applied within the cervical canal, and our efforts should be to attack the involvement of the broad ligament by filtered radiation. The pictures Dr. Keene showed of needles applied to the broad ligament rather terrify me. I would hesitate very much to make an application of unfiltered radium in the broad ligament for fear of necrosis of the ureter. As to the use of anesthesia in these cases: When there is a large mass to cauterize, anesthesia is a wise thing. When such a procedure is not necessary, we can obtain better results by morphin-scopolamin anesthesia, putting the patient in the knee-chest posture. The only way in which we can properly apply a gauze tampon to the vagina is to have the patient in the knee-chest posture, and that posture is better maintained if the patient is not under a deep anesthetic.

DR. HENRY O. MARCY, Boston: I am glad to hear from Dr. Ochsner of his demonstration of bacteria in cancer. In my investigations of cancer, we cultivated through for several generations a micro-organism which bred true and we reproduced cancer in animals. In order to disseminate the heat and the destruction through the surrounding tissues, using the thermocautery in cancer of the cervix, I packed the uterine cavity with wet cotton and then transposing the heat through the applicator conveyed in the wet cotton. One of my assistants said, "Marcy, we think that is splendid. It is like very much the way we cook our clams at the seaside, just stewing them in seaweed."

DR. HENRY SCHMITZ, Chicago: The technic of radium depends on the extent and also the irradiation required. This is limited by the bladder anteriorly and the rectum posteriorly. It will be impossible by any means at our command now to apply it beyond 3 cm. The question arises, What is going to happen to the tissue beyond the 3 cm.? We may use large amounts if we have them. Even this proposition has been stopped on account of the questions arising. For this reason we have combined effective roentgen-ray irradiation with radium therapy. I cannot agree with Dr. Taussig that the method should be applied to the individual case. As soon as we individualize the treatment of carcinoma we begin to treat the patient and not the disease, and the results will not be so good as if we treat the disease, absolutely. There is one way, and that is by the extended radical operation; though in irradiation treatment, only by extensive irradiation can we eradicate the cancer from the pelvis.

DR. FLOYD E. KEENE, Philadelphia: The point taken by Dr. Taussig in regard to the treatment of these various types of cancer certainly has merit. I tried to bring out that in the treatment of these various cases it was hazardous to proceed by rule of thumb. We give anesthesia with the definite idea of determining exactly what the conditions are, and we are governed by the conditions we find as to what type of treatment we shall use. The methods I showed were merely principles we try to apply. The details of treatment are brought out in my paper. As regards the use of the needles, Dr. Taussig has good grounds for his fears. I can only say that, in the treatment of a considerable number of cases in which we have used the needles, we have thus far ha l no bad results.

DR. REX DUNCAN, Los Angeles: I am convinced that if we do not get a single cure, the palliative results of radium are superior to anything else we have. I am confident, from my experience, if we can obtain the excellent results we apparently do in inoperable cases and the small number of operable cases treated, that radium should be given a more fair and general trial in the treatment of early cervical carcinoma. I believe that cervical carcinoma, at least, is not surgical and should be treated with radium.

I cannot agree with Dr. Schmitz. I do believe that while it is true we are treating a disease, we are also treating a human being. Many factors must be considered, and we cannot kill our patient in order to cure the cancer. Therefore, we have to modify our technic and dosage to meet the general condition of the individual patient, and also to meet the great variations in the distribution of the disease as it occurs in different patients.

Clinical Notes, Suggestions, and New Instruments

PSEUDOCYST OF PANCREAS APPARENTLY DUE TO HEMORRHAGIC NECROSIS OCCURRING DURING THE COURSE OF A GENERAL SEPSIS

W. B. RUSS, M.D., SAN ANTONIO, TEXAS

History.—A married woman, aged 21, had never been ill until at the birth of a baby, Dec. 26, 1919. A few days after confinement she developed puerperal sepsis followed by septic phlebitis. Ten days after the birth of the baby she became severely ill with agonizing pain in the epigastrium, radiating to the back and the left shoulder; vomiting occurred, and there were abdominal rigidity, rigors and a very rapid pulse. Her condition gradually improved, but she continued to vomit and to suffer severe pain. Early in March, while still confined to bed, a tumor was discovered just above the umbilicus. The roentgenogram, March 24, revealed marked deformity of the gastric antrum (Fig. 1). March 25, on account of the presence of the tumor and increasing signs of obstruction, an anterior gastro-enterostomy was performed. There is no available history of this operation or of the after-treatment, except that the patient was able to retain some food but continued to suffer severe pain, requiring a large amount of morphin, and that the tumor continued to grow. She lost weight rapidly and finally had to be fed by rectum. I first saw the patient, May 25, at which time she was bedridden, pale and evidently suffering great pain; her temperature was subnormal and her pulse rapid and weak. She was taking about 5 grains of morphin a day. She was getting small quantities of liquid food and was also being fed by rectum. She had a negative Wassermann reaction, her hemoglobin was about 45 per cent., and her white blood cell count was 11,000, with 70 per cent. polymorphonuclears. There was some albumin in the urine, with hyaline casts and kidney epithelium. She was slightly jaundiced. Her weight was 85 pounds. She had a smooth, fixed, tense, fluctuating tumor the size of a large coconut with the maximum prominence just above the umbilicus in the median line. There was no pulsation and no edema of the lower extremities. She had pain in the upper abdomen and lower dorsal region radiating to the left subscapular

V. 192

region. The pain was increased by taking food and somewhat relieved by vomiting. A diagnosis of pancreatic cyst was made.

Operation and Result.—Incision was made down the left rectus from the costal margin. The gastro-enterostomy was intact; the afferent loop, including the mesentery, was firmly adherent to the right border of the great omentum; both afferent and efferent loops were adherent to the old incision scar; the afferent loop was somewhat dilated. I found a fluctuating, smooth, dark tumor, the size of a large coconut, pushing forward the gastro-colic omentum. The lesser peritoneal cavity was filled by the tumor, the foramen of Winslow being closed. I aspirated 34 ounces of dark brownish, alkaline fluid containing bile, blood, necrotic tissue and pancreatic enzymes and having a specific gravity of 1.015. The patient made an easy recovery, the fistula closing in eight weeks. For sixteen weeks she suffered from frequent recurrences of diarrhea, during which the stools contained undigested food particles with soap and unchanged fats. The administration of pancreas extract seemed to control the diarrhea. There was no sugar in the urine. Morphin was discontinued after the third day. At present, seven months after the operation, the patient is apparently well and weighs 135 pounds. Her color is good.

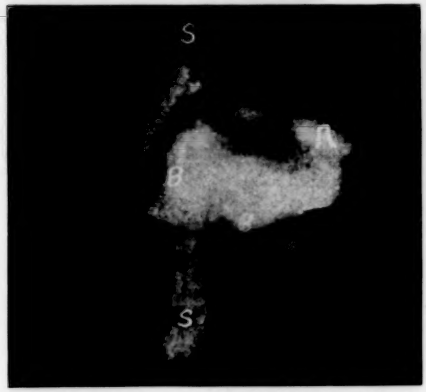


Fig. 1.—*A*, cardia; *B*, *B*, deformity of antrum; *S*, spine.

her digestive functions are apparently normal, and she seems well in every way. Roentgenoscopy (Figs. 2 and 3) disclosed that the stomach emptied through the stoma rapidly. Figure 2 shows the stomach almost empty at the end of fifteen minutes.

COMMENT

Cysts of the pancreas have been divided into:

1. Retention cysts, due to chronic partial obstruction of the ducts, and usually associated with stones.
2. Proliferation cysts, simple or malignant.
3. Congenital cystic disease, similar to polycystic disease of the kidneys; this is very rare.
4. Hydatid cysts (very rare).
5. Pseudocysts, which are collections of fluid in close proximity to or in direct connection with the pancreas. These are usually due to traumatism, but may result fram acute hemorrhagic necrosis associated with acute pancreatitis.

In our case we evidently had a pseudocyst filling the lesser peritoneal cavity and due to a septic embolus occurring during the course of a general sepsis and resulting in a hemorrhagic necrosis with rupture of the pancreas.

The history of this case presents many points of interest:

1. Ten days after childbirth, during the progress of a severe puerperal sepsis, there evidently lodged in the head of the pancreas a septic embolus followed by hemorrhagic necrosis and filling the lesser peritoneal cavity with blood and necrotic tissue.

2. There was evidently sufficient pressure on the duodenum and pyloric end of the stomach to produce partial obstruction.

Fig. 2.—Fifteen minutes after opaque meal: *A*, stomach; *B*, point on stomach of anastomosis; *C*, jejunum; *D*, small intestine; *E*, magenblase; *B-C*, functioning stoma.

The patient's rapid emaciation, severe pain and symptoms of obstruction suggested the gastro-enterostomy, which was performed, March 25.

3. The anterior anastomosis was evidently done because of the impossibility of bringing the stomach wall through the mesocolon.

7. During convalescence there was evidence of marked pancreatic deficiency, temporarily relieved by administration of pancreas extract and later followed by complete recovery.

5. In spite of the apparently ill-advised anterior gastro-enterostomy, which eight weeks after was found to show dilatation of the afferent loop and fixation of both loops by dense adhesions to the right border of the great omentum and old incision scar, and the further fact that nine months after the anastomosis was made the stomach almost completely emptied the usual opaque meal in less than twenty minutes, the patient is clinically well and free from any digestive disturbance whatever.

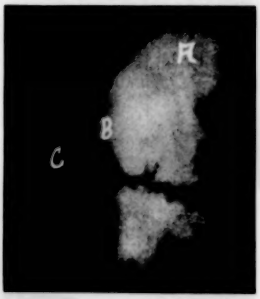


Fig. 3.—Series same as Figure 2: *A*, stomach; *B-C*, functioning anterior gastro-enterostomy.

1524 Main Avenue.

AN UNUSUAL MONSTER DELIVERED BY CESAREAN SECTION

L. F. LICHT, M.D., AND D. J. CALICCHIO, M.D., JAMAICA, N. Y.

History.—B., a woman, aged 32, was admitted to the hospital, Jan. 26, 1921. She had always been strong and in good health. Menstruation had begun at 16 and had been regular, occurring every twenty-eight days. She had preferred carnivorous food rather than herbivorous.

She was married at 31. The last menstruation had occurred July 19, 1920. Her appetite had always been good and she had always slept well until she became pregnant, when insomnia became frequent. Fetal movements were never felt on the left side, but were very vigorous on the right. Her husband was living and in good health. Neither husband nor wife gave any history of syphilitic infection.

Examination.—The abdomen was very pendulous and bulky. The right side presented the configuration of a large pumpkin. The pelvic measurements were: true conjugate, 7.75 cm.; diagonal conjugate, 9.25 cm.; interspinal, 25 cm.; intercristal, 27.5 cm.; bitrochanteric, 29.75 cm., and external conjugate, 19 cm. Vaginal examination revealed a left occipito-anterior position with a vertex presentation.

Course.—The membranes ruptured spontaneously at 6:45 p. m. Only one fetal heart beat was detected. At 7:30 p. m. a premature female baby was born. It gave one weak cry and died.

The abdomen was still large, and labor pains were in progress. Since the presence of twins was suspected, another vaginal examination was made, even though no fetal heart sounds were heard. A strangely shaped mass in the uterine cavity was discovered. Later a footling appeared, and several attempts to extract it proved futile. A cesarean section was performed, and a monster, the shape of an inverted cone, was delivered.

Fig. 1.—Acephalus thorus which required a cesarean section for its extraction.

It was 12 inches long. The upper third was 6½ inches wide, and 6¼ inches thick. The lower third was 4 inches wide; the body was 2 inches thick. On the right foot, the first and second toes were separated; on the left foot, the first and second toes were fused.

One opening was found, three fourths of an inch below the cord, which apparently had been its point of attachment. Underneath it was a second opening, probably the urachus. On section, the upper third exuded a pale cystic fluid. The left kidney was situated in its normal position; the right kidney was located in the median line, but under the umbilicus. The vertebral column began at the middle of the upper third of the monster. The intestines were rudimentary in type. Heart and lungs were absent. No upper extremities nor head was formed, but the lower extremities were present. The monster was a female.

Fig. 2.—Acephalus thorus.

Roentgen-Ray Examination.—There were no cervical vertebrae. On the right side there appeared to be a beginning formation of the acromion process. Development of the right clavicle was also seen, but the left clavicle was absent. Seven ribs on each side were made clear. The vertebral column was clear from the neck downward. It had a very rudimentary coccyx, a dorsal curve, with convexity prosteriorly. Both ilia were formed. There were no ischia but the beginning formation of the pubes was apparent. Both femurs were well formed, as well as the bones of the legs. There were only two metatarsals on each foot. Slight ossification of the os calcis and astragalus had also started. Four phalanges of each foot were seen.

The roentgenogram of the fetus revealed no irregularities of the skull. The vertebral column was straight, and the ribs gave no evidences of any underdevelopment. All of the bones were normally developed.

Examination of Fetus.—The fetus weighed 4½ pounds and appeared almost perfect in form, except that the abdomen was barrel shaped, with very narrow ends. There was a protrusion in the right hypochondriac region as if some object from the inside were pressing it outward.

The general nutrition of the baby was very poor. The head was abundantly covered with hair. Lanugo covered the body, with an almost total absence of vernix caseosa.

The placenta weighed 1½ pounds. Both cords were 20 cm. long. The cord attached to the baby was thicker and healthier than the one attached to the monster.

The patient developed a rise of temperature, which for a time caused a little anxiety, but it responded to quinin administration. Evidently this temperature was due to an old malarial infection, as the history reports. The patient was discharged, Feb. 15, 1921, in good condition.

Shelton Avenue and Ray Street.

AN INTERESTING CASE OF COMPLETE SEVERANCE OF THE CERVICAL CORD

C. C. HIGHTOWER, M.D., HATTIESBURG, MISS.

A woman, aged 32, six months pregnant, was shot in the neck with a 0.44 caliber revolver, May 26. I saw her ten minutes later. She was conscious but completely paralyzed, and had no sensation below the point of injury. A roentgenogram disclosed that the bullet had passed through and fractured the fifth cervical vertebra. An operation was not undertaken because the immediate onset of the symptoms indicated a complete severance of the cord. The pulse dropped to 50 but soon returned to normal. There was retention of urine, involuntary action of the bowels, total loss of the reflexes with the exception of the plantar, and only diaphragmatic respiration. The temperature ran an irregular course throughout, ranging from 99 to 105.5. On the eleventh day after the injury, the condition remaining the same and the outlook absolutely hopeless, an operation was performed with the faint hope that compression of the cord by fragments of bone could be removed. The cord was found to be completely severed and the ends separated for the distance of an inch. The patient stood the operation well and soon reacted from the effects of the anesthetic. The condition continued the same, the pregnancy not being disturbed. She died six days later.

Carter Building.

A SOFT RUBBER TIP FOR THE BELL TYPE OF STETHOSCOPE

CONSTANTINE L. A. ODEN, M.S., M.D., NEW YORK

The value of a positive contact of the stethoscope with the patient is directly in proportion to the accuracy of the sounds heard. Many stethoscopes are uncomfortable to the patient: the bell type of scope having the aluminum tip is nearly always

Soft rubber tip for bell type of stethoscope.

cold, the hard rubber tips are painful when pressed too firmly against the thorax, as is the case in lean patients. These objections can readily be overcome by the use of a simple and easily obtainable device:

A soft rubber nipple of good quality is cut with a pair of scissors, as indicated by the dotted line in *A*. This portion which has been cut from the nipple is slipped over the end of the bell as in *B*. Those who use the Bowles attachment will only have to retract this rubber tip up over the bell and replace it when necessary.

The advantages of this simple modification are many. It forms a perfect contact with the patient; it is comfortable by being neither cold nor sharp; it eliminates all external sounds; it can be used over hairy surfaces; it is excellent for hearing fetal heart sounds, and it is especially useful in the examination of infants and children.

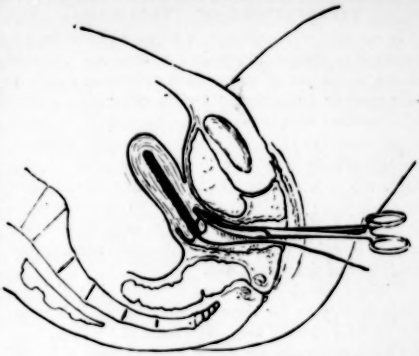
I make no claim as to the originality of this modification.

Bellevue Hospital.

SIMPLE METHOD TO RETAIN RADIUM IN CERVIX AND UTERUS

H. DAWSON FURNISS, M.D., NEW YORK

This method was devised because of the uncertainty of accurate retention of the radium tube in the cervix and uterus by gauze packing, and of the difficulty of removal when sutured in place in the usual manner.



One end of suture is passed through anterior lip, clamped with forceps and cut short. The long end is passed out of the vagina. To remove tube, clamp is released and withdrawn by traction on the long end. The usual gauze packing is purposely omitted in the drawing.

The radium tube is placed in a 1 mm. black rubber tube, and the tube tightly tied with linen thread above and below the radium. After the location desired has been determined, a long linen ligature is tied around the tube at the proper point, both ends being left long. One is threaded on a surgical needle and passed through the anterior lip of the cervix, from within outward. A straight artery clamp is then applied to the suture at the point where it comes through the lip of the cervix, and this ligature cut short on the distal side. The other end of the suture hangs over the vulva. The vagina is packed with gauze to prevent pressure and to furnish proper protection from the radium. To remove the radium, the gauze packing is extracted, the clamp released, and the uncut end of the ligature pulled.

54 East Forty-Eighth Street.

Diploma in Tuberculosis.—I have frequently urged the institution of a diploma in tuberculosis which would strengthen the tuberculosis officer's hands, both by being evidence of wide acquaintance with all aspects of antituberculosis activity and by elevating his outlook. But who would devote the time, labor and expense required to such an end if it offered no personal or material benefit? The tuberculosis officer is usually so inadequately remunerated, has so little prospect of professional advancement, is in most cases not even on a plane such as that enjoyed by the postman and policeman, or other public servant, by the inducement of a pension on retirement, that recruits for the service would be almost unobtainable if the possession of a diploma were a necessary antecedent to employment.—H. Gauvain, *Brit. J. Tubere.* **15**:4, 1921.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 20, 1921

EXPLANATIONS OF CREATINURIA

In contrast with creatinin, a nitrogenous product of metabolism always present in the blood and excreted in the urine, the closely related substance creatin is only casually found there. On the other hand, creatin is a constant component of skeletal muscle, in which it was discovered by Liebig many years ago. Strangely enough, creatin is usually found in the urine of children, where it may occur in quantities equal to that of the urinary creatinin. Aside from this occurrence in the secretion of the kidneys in early life, creatin may be found in the urine of adults only under special conditions of sickness or diet.

Various theories have been formulated at different times to account for these peculiar facts. It is needless to refer to them here, since none of the hypotheses are entirely convincing in the light of what is known about metabolism. There is a widespread belief, which is not yet entirely capable of rigorous experimental proof, that when creatin is introduced into the body or formed there it readily undergoes conversion to creatinin, which is thereupon eliminated. This fact, however, will not suffice to account for the origin of the creatin omnipresent in muscle or for the strange occasional excretion of creatin as such.

Of late there have been frequent intimations that creatin excretion may follow the ingestion of large amounts of protein. Such a result is by no means always obtained, so that some investigators have even scouted the probability of any relationship between the plane of protein metabolism and creatinuria. Nevertheless there are sufficient positive data, notably those secured by feeding experiments with women as subjects, to raise the question as to whether creatin is not a more or less direct derivative of some fragment of the protein molecule. One species, the pig, has proved to be peculiarly susceptible to creatinuria when considerable amounts of protein are fed to it. Hence Gross and Steenbock[1] of the University of Wisconsin have employed this animal in a search for possible precursors of creatin among the amino-acids derived from proteins. They have, indeed, found that arginin, which is obtainable from all proteins examined, augments creatin excretion when it is administered orally in sufficient amounts. The chemist will at once be reminded that, of all the known amino-acid derivatives of proteins, arginin alone contains the guanidin nucleus $H_2N.C(NH).NH$ — which is characteristic of creatin. In this case, however, an explanation must be sought in other factors. Cystin feeding causes creatinuria only when the sulphuric acid formed by the oxidation of its sulphur is left unneutralized; when neutralized, the creatinuria promptly disappears, though this is not the case after feeding a protein or arginin. Acidosis thus may also be a factor responsible for creatinuria.

Some time ago, Denis[2] reported the production of creatinuria by protein feeding in a man with exophthalmic goiter, in which oxidative processes are markedly accelerated. Feeding with thyroid has produced the same result in pigs, according to Gross and Steenbock.[3] They formulate the view that augmented breakdown of protein, whether of food or endogenous origin, liberates arginin, the creatin precursor in unusual amounts. Creatin arises when oxidation is augmented. Creatinuria is looked on as the result of the accumulation of creatin up to and beyond the threshold of its excretion. Usually, Gross and Steenbock add, this is prevented by the prevalent rate of conversion of creatin into creatinin, which appears to be an invariable reaction.

1. Gross, E. G., and Steenbock, H.: Creatinuria, II, Arginine and Cystine as Precursors of Creatine, J. Biol. Chem. **47**: 33 (June) 1921.

2. Denis, W.: J. Biol. Chem. **30**: 47 (May) 1917.

3. Gross, E. G., and Steenbock, H.: Creatinuria, III, The Effect of Thyroid Feeding upon Creatinuria, J. Biol. Chem. **47**: 45 (June) 1921.

THE INTERPRETATION OF METABOLISM DATA

Whenever a science becomes more exact it is likely to make substantial progress; its usefulness in applied fields is also usually destined to be greatly enhanced. Thus the ophthalmologist is able to render invaluable service to innumerable persons because he can measure their eye defects with considerable accuracy and arrange corresponding corrections for them. By the application of careful measurements, a variety of standards or constants are becoming established in connection with practical medicine. We speak of normal temperature and normal pulse rate; on them in part are based diagnostic and therapeutic considerations of febrile states or of bradycardia and tachycardia, respectively. More recently, so-called normal excretory rates for the kidney function and standards for the alkali reserve for the blood have become established, while facts of normal blood sugar concentration and blood cell count preceded this information.

The latest of the "standards" fixed by accurate measurement is the basal metabolic rate. This concerns the heat which represents the energy exchange per hour and unit of surface area in a person at complete rest without food. Important as such factors are already

destined to become, they must not be permitted to assume an unwarranted significance in the mind of the less experienced practitioner who is quite naturally and justifiably eager to have a standard by which otherwise indefinite states of well-being can be gaged. Means [1] has recently well pointed out that none of the physiologic constants are constant in an absolute sense. The body temperature has a normal range of variation in the course of the day. In a lesser degree this is true of the pulse rate; yet the limits are understood well enough to permit a useful estimate of what constitute pathologic conditions. The same reasoning, Means argues, may be applied to the basal metabolism. Only here, he adds, the normal range of variation is distinctly less than in the case of the pulse. It is more nearly constant than is the pulse, and is therefore a more accurate index of disturbed function than is the pulse, at least as between different individuals. Yet in interpreting the significance of metabolism findings in patients, Means warns further, we must correlate them with clinical findings and weigh their probable importance in comparison with every other sort of evidence in any given case, exactly as we should do in interpreting any other laboratory or special finding, such as roentgen-ray, phenolsulphonephthalein tests, blood sugar data, and the like. Simplified technic cannot absolve the clinician from the duty of thoughtful interpretation of figures presented to him by a mechanical laboratory worker. We must take to heart the criticism of one who has been most instrumental in securing metabolism data for the medical profession. Even the most skilled and most experienced clinicians, he said publicly at the Boston session of the American Medical Association, make at times sorry exhibits of their use of apparatus. The latter is easy to use. No effort of the inventors can, however, make up for the deficiency of theoretical consideration of the significance of basal metabolism measurement on the part of the user of readily acquired statistics.[2]

Among the factors which alter metabolism is the peculiar effect of ingested food. This increased heat production, which is greatest after the intake of proteins but not wanting in the case of fats and carbohydrates also, was designated "specific dynamic action" by Rubner, who first described it in detail. It is now known that thyroid extracts, the hormone thyroxin and epinephrin also give a specific stimulus to metabolism. Following the advice of a number of American investigators, it is proposed to reserve the expression "specific dynamic action" to foods alone, as it was originally employed, and to apply the term "calorigenic" action to the effect of special substances, such as have been indicated. Thus, the calorigenic action of thyroxin is one of the newer facts clearly demonstrated by the study of basal metabolism.

1. Means, J. H.: Determination of the Basal Metabolism, J. A. M. A. **77**: 347 (July 30) 1921.
2. Benedict, F. G.: The Measurement and Standards of Basal Metabolism, J. A. M. A. **77**: 247 (July 23) 1921.

HARD WATERS AS A PHYSIOLOGIC SOURCE OF CALCIUM IN THE BODY

The human body contains about 1 per cent. of the element calcium, or a total of nearly 2 pounds (about 1 kg.), most of which represented by calcium phosphate deposited in the skeletal structures. This is assuredly a very large supply of an inorganic material for physiologic purposes. How adequate this seeming abundance really is, however, will depend on the extent to which drafts are made on it in the every-day performances of the living body. The daily "waste" has been estimated to exceed 0.5 gm., so that the normal supply would not be exhausted in less than two or three years if it were entirely available for physiologic uses. Obviously, a growing deficit cannot be tolerated indefinitely; hence one is led to inquire whether the daily losses are ordinarily made good by the majority of mankind in their usual regimen, or, if not, to what extent deprivation of lime can continue before untoward evidences manifest themselves.

Pregnancy and lactation have long been recognized as conditions in which there is an unusual need of lime for the growth of the fetus, on the one hand, and, on the other, for the production of the lime-bearing milk of the mother. The daily requirement for the development of the fetus at four months, for example, is at least 150 mg. of calcium; 1 liter of milk includes approximately 200 mg. of this element. It is quite conceivable, therefore, as has been pointed out more than once in THE JOURNAL, that shortage of calcium may become a reality if the diet is not well selected; for meats and cereals, fats and sugars—all of which enter so largely into present day rations in this country—are at best very inadequate sources of lime.

Lime salts are found in certain waters which are designated as "hard" when the content of calcium exceeds a minimum. Whether hard waters actually represent any noteworthy source of calcium for human needs is not clearly established. Recently the pharmacologist H. H. Meyer [1] of Vienna, a careful scientific observer, has presented statistics regarding the military fitness of young men from different regions in Europe considered in relation to the quality of the water supplies at their homes. His data are interpreted to indicate a smaller incidence of diseased teeth and a larger proportion of persons with healthy teeth in areas where harder potable waters are used. Meyer even ventures the statement that, in general, the percentage of young men fit for service in the armies was larger in calcareous regions than in those in which other formations prevail. He also cites specific instances of a "deterioration" in the quality of the recruits at Gotha after the population was compelled to change its supply of drinking water from one of hard quality to softened water.

1. Meyer, H. H.: Ueber Kalktherapie, Oesterreich. Ztschr. f Stomatol. **18**, No. 11, 1920.

It is admittedly unwise to place undue stress on limited statistics; nevertheless, the suggestions embodied in the preceding comments need not be passed without some attention to their possible wider significance. The teeth are only a small part of the bodily structures that may suffer from inadequate supply of calcium, although defects or deficiencies may be more conspicuous in the mouth than elsewhere. Experience has shown that it is not easy to enrich the body suddenly by therapeutically prescribed lime compounds. We must therefore learn the "natural" ways in which the calcium equilibrium is ordinarily prevented from showing a negative balance in man.

SIMPLIFICATION OF THE INTESTINAL FLORA

At birth the alimentary tract and its contents are sterile; within only a few hours, however, they are invaded by bacteria which gain entrance from the environment of the infant through the mouth and anus. Thenceforth a succession of conditions representing bacterial invasions and development of varied types furnish the data for the story of alimentary bacteriology. Those chapters which deal with baneful micro-organisms, such as are responsible for dysentery and typhoid fever, have been extensively elaborated; but, as a recent writer has reminded us, "the more subtle bacterial processes which take place in the intestine, and the laws which govern the preponderance of one type of bacteria over another, have as yet been but little understood." [1]

It has, of course, long been recognized that alimentary changes which can be brought about by dietary factors may influence the character of the intestinal flora. The problems which this aspect of the subject presents offer large difficulties of solution because of the fact that in the feces, which ordinarily are the only alimentary contents available for examination, a large proportion of the intestinal bacteria are found dead. MacNeal, Latzer and Kerr [2] have estimated the relative number of viable bacteria in human feces, as compared with the total bacterial count, at only about 1 to 3,000. Obviously, it is not easy to conclude from the character of the few survivors what the true conditions of bacterial life may have been in the upper reaches of the bowel. Nevertheless, in view of the indisputable changes in the intestinal flora which have been noted to follow radical changes in diet, one is impelled to admit some relationship between the chemical character of the ingested food and the activities of the intestinal micro-organisms. The consensus is probably expressed by the statement that "a proteolytic or putrefactive flora results from high protein feeding and a carbohydrolytic or fermentative active flora develops when the protein intake is low and the diet consists largely of carbohydrates." Accordingly, it ought to be possible to vary the micro-organisms to some degree at will.

Metchnikoff adopted what he believes to be a different scheme, namely, that of introducing cultures of viable bacteria as such. This is his well known project of bacterial implantation. Believing that poisons of putrefactive origin are detrimental to human well-being, he proposed, as it has been fancifully expressed, to fight the proteolytic bacteria on their own battlefield by the introduction of an antagonistic microbic army, the lactic acid bacilli. The best scientific evidence of the present day indicates, however, that Metchnikoff's favored bacillus, *B. bulgaricus*, of which great therapeutic results have been expected, is incapable of accommodating itself to intestinal conditions. The latest records of such failures have come from Rettger and Cheplin [1] of Yale University. They have shown, however, that a related micro-organism, *B. acidophilus*, which is actually of intestinal derivation and not originally foreign to the alimentary tract, as is the Bulgarian bacillus, lends itself readily to implantation in the intestinal canal. Although such results can be attained through ingestion of living cultures, they are far more readily secured by special alterations in the composition of the diet, foremost of which is the administration of two carbohydrates which promote growth of this type of micro-organism, namely, lactose and dextrins. Other common carbohydrates are not equally successful.

The most plausible explanation of the uniquely favorable influence of lactose or dextrin feeding on the implantation of *B. acidophilus* is one which, according to the Yale bacteriologists, rests upon the fact that these foods persist as such farther along the alimentary tract so that they are not entirely absorbed or destroyed before reaching the large intestine. There they establish an optimum environment, if we accept Rettger and Cheplin's interpretation, by serving as a readily available source of energy for *B. acidophilus*. The reason diet alone succeeds in fostering this predominance of an organism to the practical exclusion at times of the other bacterial inhabitants of the lower gastro-enteric tract lies in the fact that *B. acidophilus* is normally present in the intestine, though in small numbers, and needs merely the stimulus of a favorable medium to thrive. Milk promotes this result because it is a solution of lactose.

Whether there are special conditions under which the implantation of *B. acidophilus* and the repression of the proteolytic intestinal bacterial invaders are undeniably beneficial remains to be learned. The present uncertainty of the clinical aspects of the subject need not detract from the deserts of the scientific findings respecting *B. acidophilus;* nor should the latter be too hastily translated into a new sour milk cult. Kendall [3]

1. Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of the Intestinal Flora, with Special Reference to the Implantation of Bacillus Acidophilus, New Haven, Yale University Press, 1921.
2. MacNeal, W. J.; Latzer, L. L., and Kerr, J. E.: The Fecal Bacteria of Healthy Men, J. Infect. Dis. **8**: 123-169; 571-609, 1909.
3. Kendall, A. I.: Certain Fundamental Principles Relating to the Activity of Bacteria in the Intestinal Tract: Their Relation to Therapeutics, J. M. Res. **25**: 117-187, 1911.

suggested some time ago that feeding liberal amounts of lactose to infants might lead to excessive development of *B. welchii*, an inhabitant of the alimentary tract and by no means a desirable one. This is denied by Rettger and Cheplin, who have repeatedly found that "there was always a marked reduction, and at times a complete elimination, of not only *B. welchii*, but of *B. coli* as well." The nearest competitor of *B. acidophilus* is *B. bifidus* of Tissier, which is dominant in the stools of infants; but it is not so easily cultivated and has a higher energy requirement. The possibility of simplifying the fecal flora in these comparatively harmless ways deserves further earnest attention.

Current Comment

CONGRESS PROHIBITS PRESCRIPTION OF BEER

House Bill 7294, passed by the House of Representatives, June 27, and by the Senate, August 8, amends the Volstead act by specifically providing in Section 2 that "only spirituous and vinous liquor may be prescribed for medicinal purposes." It also provides that "permits to prescribe and prescriptions for any other liquor shall be void. No physician shall prescribe nor shall any person sell or furnish on any prescription, any vinous liquor that contains more than 24 per centum of alcohol." Physicians are not permitted to prescribe more than one fourth of a gallon of vinous liquor, or any liquor that contains more than one-half pint of alcohol, for use by any person within any period of ten days. Physicians are limited to 100 prescription blanks for every ninety days. Any physician desiring to issue any more prescriptions must prove to the commissioner of internal revenue that for some extraordinary reason a larger number of prescriptions is necessary. The law also contains a number of changes in the other provisions of the Volstead act which are not of special importance to physicians. While the prohibition of beer as a medicine will undoubtedly clarify and improve the relations of physicians to the internal revenue bureau, the limitation of the number of prescriptions to 100 in ninety days, or a little more than one a day, is of still greater importance. This will permit latitude to those physicians who are desirous of prescribing whisky under conditions which they believe justify it, but will put a stop to the practice of a few physicians who have written an unlimited number of prescriptions for one-half pint of whisky.

SWEET LAW REORGANIZES VETERAN RELIEF

The passage of the Sweet Bill by both Houses of Congress and its approval by the President on August 9 completely reorganizes the machinery for veteran relief. It establishes an independent bureau under the direct control of the President, to be known as the Veterans' Bureau, the director of which shall be appointed by the President and subject to confirmation by the Senate. The powers and duties of the director of the Bureau of War Risk Insurance in the Treasury Department are transferred to the new bureau and the office of the director of the Bureau of War Risk Insurance is abolished. All the personnel, facilities, property and equipment of the United States Public Health Service transferred to the Bureau of War Risk Insurance by order of the Secretary of the Treasury on April 19, 1921, and all the Rehabilitation Division of the Federal Board of Vocational Education are transferred to the Veterans' Bureau and put under the control of the director, with the provision that the commissioned personnel of the United States Public Health Service detailed to the Veterans' Bureau shall hold the same rank, receive the same pay and be subject to the same rules for promotion as in the Public Health Service. The director is instructed to establish a central office in the District of Columbia, and not more than fourteen regional offices nor more than one hundred and forty suboffices for administering the act. The director, subject to the instructions of the President, is to be responsible for the proper examination, medical care, treatment, hospitalization, convalescence and after care, welfare, nursing, and vocational training, and such other services as may be necessary for the beneficiaries of the Bureau of War Risk Insurance. He is authorized to utilize the facilities of the Public Health Service, the War, the Navy, and the Interior departments, the Soldiers' Home, and such other governmental facilities as may be made available. He is also authorized to maintain an inspection service and to standardize methods of examination, medical care, treatment, hospitalization and convalescent care, and to provide special hospital facilities for the proper medical care and treatment of the beneficiaries. The passage of this act takes the entire problem of medical and hospital care of War Risk Insurance men out from under the Treasury Department and puts it under a director appointed by the President, and responsible to him alone. With practically unlimited authority there should be no question as to the responsibility either for the success or failure of efforts for veterans' relief.

A SERVICE RENDERED BY CHIROPRACTORS

Good frequently results from opposition and it seems that actual benefit may result from the attacks on scientific medical practice made by chiropractors in their attempts to secure exemption from medical practice laws. Most states have excellent laws regulating the practice of medicine, but the constitutionality of many of these laws has not been tested in the courts. Thanks to the chiropractors, not only are these tests being applied, but the decisions rendered are tending to show more clearly what constitutes the practice of medicine. The decisions also serve to emphasize the necessity of a basic scientific training for the practice of the healing art. A more vigorous enforcement of medical practice laws will naturally be vigorously contested in some instances. Those interested in scientific medi-

cine, however, need not fear the final outcome of these tests. Chiropractors have been unhindered in their practice for so long that they have come to consider themselves immune from medical practice laws, as well as exempt from the educational qualifications recognized as necessary for the safe and efficient practice of the healing art. Any law which restricts them, therefore, is declared to be "a discrimination," and on that claim they undertake to have the law declared unconstitutional. In fact, the available evidence indicates a nation-wide campaign to invalidate medical practice laws. Supreme court decisions have recently been handed down in two states. In Illinois, a faulty wording of the law was found and the practice act was held [1] to be invalid. In Ohio, however, the decision not only upheld the constitutionality of the practice act, but also clearly set forth the principles underlying the practice of medicine and threw an important light on faulty decisions by other courts. The sooner the various questions pertaining to the regulation of the practice of medicine are tested out in the courts, the better. If the phraseology in any practice act is faulty, that fact should be promptly pointed out. The tests should be applied also to the laws establishing separate boards for certain groups of practitioners and lower educational standards than are required of physicians. These laws are clearly class legislation and discriminate against physicians. Just as soon as the basic and essential needs are presented to the judiciary, an outcome favorable to education and common sense will be assured. So far as medical practice laws have been carried to the national supreme court, the decisions [2] have swept aside false theories and revealed the necessity of a scientific training for those who undertake to practice the healing art.

TRANSITORY FEVER IN THE NEW-BORN

In 1895, Holt [3] of New York described the occasional occurrence of a rise of body temperature, independent of any evident infectious process or localized disturbance, in infants during the first few days of life. His interpretation of the condition encountered during the characteristic period of weight loss in the new-born is indicated by the expression "inanition fever" which was used in the early accounts. Since then the phenomenon has repeatedly been described by pediatricians both in this country and abroad. The available statistics show an incidence of increased temperature in 4 per cent. and upward of the infants examined, aside from those exhibiting febrile reactions attributable to recognized pathologic causes. There is no justification for ascribing a septic origin to the so-called inanition temperature. Several observers have been inclined to connect the febrile state directly with the loss of body weight, or in ultimate analysis with the effect of products of tissue destruction that must occur before the infant begins its normal gains in weight. The higher temperatures are by no means always coincident with the largest declines; and, conversely, considerable decreases in weight frequently continue without any of the abnormal temperature symptoms. Again, it has been alleged, particularly by German writers, that the loss of water attending the decrease in weight of the new-born occasionally causes an interference with temperature regulation analogous to the so-called "salt fever." In this sense the condition might be represented as a thirst fever, the result of interference with the usual physiologic heat dissipation. This hypothesis also rests on a rather slender basis. Grulee and Bonar [4] of Chicago, who also have rejected the theories of a regular relationship between the transitory fever of the new-born and either the percentage of weight loss or the quantity of fluid ingested, have concluded that the temperature elevation at this early period may most likely be due to absorption of some protein products, bacterial or other, from the intestines of the infants. The meconium is rich in protein material prone to putrefactive change as soon as bacteria reach the lower bowel. According to Grulee and Bonar, the subsidence or transitory character of the fever may be accounted for by the addition of breast milk to the diet whereby the putrefactive processes in the intestine become diminished. "Inanition fever" would therefore be a misnomer for the phenomenon described.

1. Illinois Practice Act of 1917 Declared Void, this issue, 639.
2. The United States Supreme Court and Medical Cults, Current Comment, J. A. M. A. 64: 1431 (April 24) 1915.
3. Holt, L. E.: Arch. Pediat. 12: 560, 1895.
4. Grulee, C. G., and Bonar, B. E.: Some Observations on the So-Called Inanition Temperature of the New-Born, Am. J. Dis. Child. 22: 44 (July) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Meeting of County Health Officers.—Outstanding features of the meeting of the county health officers of Alabama, held at Montgomery, July 25-26, were the discussion of the new plan of doing malarial control work through the county health officers, on a county-wide basis, and the announcement of a plan of cooperation, between the state board of health and the state board of education, for school sanitation and the establishment of courses in hygiene in the schools. Dr. Samuel W. Welch, state health officer, presided at the meeting, and Dr. C. W. Cheyney, director of the Alabama State Board of Health Laboratory, gave a demonstration of the proper method of preparing specimens to be sent to the laboratory for examination.

CALIFORNIA

Personal.—Robert A. Millikan, Ph.D., professor of physics, University of Chicago, has been appointed as chairman of the executive council of the California Institute of Technology and director of the Norman Bridge Laboratory of Physics. Approximately $100,000 has been guaranteed for the annual support of the laboratory, and in addition the institute has been recently promised $200,000 for an extension of the laboratory, and $50,000 for a library. It has also been announced that the Southern California Edison Company will erect a high-tension laboratory, representing an investment of $75,000, on the campus of the institute. With the coming of Mr. Millikan to the institute in October, a large project of research work will be undertaken, which will involve the close cooperation of the Mount Wilson Observatory, the Norman Bridge Laboratory of Physics, and the Gates Chemical Laboratory of the Institute.

ILLINOIS

Personal.—Dr. Ira C. Copelan, Springfield, has been appointed as chief of the division of social hygiene to succeed Dr. George G. Taylor, who recently resigned to accept full-time duty with the U. S. Public Health Service.

Institution for Crippled Children Filled.—Quarters for crippled children, that were recently opened in connection with the St. John's Sanatorium, located at Riverton, have been filled to capacity. In all there are forty-two children who are now under treatment there.

Poliomyelitis Increases.—The state department of public health, July 15, issued a statement regarding a rather unusual increase in the number of cases of poliomyelitis. During July, there were ninety-eight cases reported, as against nine cases for the same month last year. While the situation is not alarming, the department has urged health officers and physicians to be on the alert for suspicious cases and to report them promptly.

Entries for Better Babies Conference Reach Maximum.—The maximum limit of 1,000 entries for the sixth annual Better Babies Conference, to be conducted by the state department of public health in connection with the state fair at Springfield, was reached by noon Friday, August 12, the last day of the period set for receiving applications. This represents the greatest number of entries ever filed by the department and indicates the phenomenal growth of the better baby conference movement in Illinois.

Typhoid on Dairy Farms.—Prompt action on the part of state and local health officials doubtless prevented an epidemic of typhoid fever in Decatur, recently, by cutting off the sale of milk from two dairy farms where several cases of typhoid fever were located. An investigation brought to light the usual situation found under such circumstances. Carriers were located on both farms. The individual in each case gave a history of typhoid fever during the past five years, and a laboratory test showed positive reactions for both.

INDIANA

Personal.—Dr. Rollin H. Bunch, Muncie, was nominated for mayor of Muncie on the Democratic ticket in the city primary held there recently.

Vital Statistics of Miners.—Dr. H. R. O'Brien of the U. S. Public Health Service arrived in Indianapolis recently from Washington, D. C., to begin the collection of vital statistics pertaining to the life and health of miners and quarrymen in Indiana.

IOWA

Hospital News.—The new Dubuque County Hospital for the treatment of tuberculosis was opened, August 13.

Personal.—Dr. Frank T. Launder, Garwin, has been made president of the state board of health, to succeed Dr. Walter L. Bierring, Des Moines, who retired from the board.

Precautions Against Epidemic.—Because of deaths from infantile paralysis in Iowa City, the board of health suspended Sunday schools and closed all public gatherings except at churches and moving picture shows, where persons under 18 were not admitted, on August 7, as a precaution against an epidemic.

MAINE

Clinic at Fairfield Sanatorium.—The second annual clinic for physicians was held at Fairfield, August 1-5, under the auspices of the trustees of the tuberculosis association, in cooperation with the Maine Medical Association, the Maine Public Health Sanatorium, and the state department of health. These meetings constitute the first attempt at graduate medical instruction in Maine and, since the closing of Bowdoin Medical School, furnish the only opportunity for medical study in the state. Dr. Edward O. Otis, professor of pulmonary diseases and climatology, at Tufts Medical School, Boston, and Dr. Samuel Ellsworth, roentgenologist, Boston City Hospital, directed the morning and afternoon work. Evening lectures were given by Dr. James A. Miller, New York; Dr. Fred T. Lord, Massachusetts General Hospital; Dr. Robert Greenough, Harvard Medical School and Brigham Hospital for Chronic Diseases, and Dr. Otto Lowy of the U. S. Public Health Service, Newark, N. J.

MASSACHUSETTS

Service for Tropical Diseases.—The trustees of the Boston City Hospital have authorized the organization of a service for the diagnosis and treatment of cases of tropical diseases, including certain parasitic and infectious diseases, rarely seen here and more common in foreign countries. The work of the service has been undertaken by Dr. George C. Shattuck, who will also assume the duties of assistant professor of tropical medicine, at the Harvard Medical School, September 1.

NEW JERSEY

Rehabilitation Clinic.—The commissioner of labor has authorized the establishment of a rehabilitation clinic at Trenton, for the physically handicapped in industry. The labor department will establish an employment service for men and women, in connection with the bureau.

NEW YORK

Personal.—Dr. Charles W. Selover, Canandaigua, has been appointed superintendent of the Ontario County Tuberculosis Hospital to succeed Dr. William A. Bing, retired.

Division of Sanitation Supersedes Division of Sanitary Engineering.—By recent legislative amendments to the public health law the division of sanitary engineering of the New York State Department of Health was changed to a division of sanitation and the work of passing upon plans for sewerage and sewage disposal transferred to the state engineer.

Tribute to Dr. Trudeau.—On the morning of August 7 a memorial window in the Episcopal Church of St. John's in the Wilderness, at Paul Smiths, N. Y., the gift of William Rockefeller, was dedicated to the memory of the late Dr. Edward Livingston Trudeau. Dr. Trudeau started the building of this church four years after his first visit to the Adirondacks.

Farmers' Sanitary League Protects Vacationists.—Dr. Edward Goodwin, sanitary supervisor of the Jewish Agricultural Aid Society, has organized what is known as the Farmers' Sanitary League in a district of many miles around Ellenville, N. Y. Under the rules of the league no farmer or boarding-house keeper can obtain membership in the organization unless he subscribes to and rigidly observes the sanitary code which the league has adopted. This code regulates the disposal of garbage and other refuse, sewage disposal, fly prevention, and water supply. The code must be conspicuously posted in the farmhouse, and periodic visits are made by Dr. Goodwin to insure compliance with this self-imposed code. Officers of the state health department are cooperating in this activity and every farmer who complies with all the requirements receives a certificate good for one year. This is the first movement of the kind in the state and gives assurance to vacationists and travelers that an effort is being made to insure them from communicable disease in such communities.

New York City

Jury Acquits Physician.—Dr. Fred Van Vliet, who was recently tried before Judge Rozalsky on a charge of having attempted an illegal operation, was acquitted by the jury.

Plans for New Bronx Hospital.—Plans are being drawn for a new $2,000,000 city hospital which will be erected in the Bronx. The building will be located on Walton Avenue, between One Hundred and Sixty-Sixth and One Hundred and Sixty-Seventh streets, and will contain 500 beds. The contract will be let in the fall, and it is expected that the building will be ready for occupancy by spring.

Bronx Physicians' Club.—To promote good fellowship and the betterment of economic conditions for physicians, to obtain legislation for the welfare and improvement in the health of the people and to secure uniform medical education, the Bronx Physicians' Club has been organized and incorporated. It is planned to erect a public building at a cost of about $500,000 which will be open to physicians of New York and neighboring states.

Fraudulent Tuberculosis Cure Promoter Prosecuted.—The *Bulletin* of the New York City Health Department, August 6, states that Dr. Benjamin Block, against whom the department brought action, some time ago, for violation of Section 118 of the Sanitary Code, has been successfully prosecuted. Evidence was presented at the trial which showed conclusively that Dr. Block claimed that a preparation made by him was a specific cure for tuberculosis. These claims were proved to be fraudulent and, as a result, a $500 fine was imposed by the court. An analysis of the preparation showed it to be a shotgun mixture of many well known pharmaceuticals.

Instruction for Ship Doctors.—The Broad Street Hospital will open a graduate school of medicine, October 15, which

will provide instruction for ship doctors and out-of-town physicians in the advancements made in medicine and surgery. An opportunity will be given to study the methods of treatment and prevention of tropical diseases, as the hospital gets cases of malaria, leprosy, typhus fever and other tropical diseases. Dr. Charles E. Sibley, who has had eight years' experience with tropical diseases in the Philippines, will head this department. Each course will last one month, and arrangements will be made by which ships' surgeons in port for a week can get the entire course in weekly sections. The new school expects to be able to take care of from 100 to 200 students. The officers of the graduate school are: director, Dr. A. J. Barker-Savage; president, Dr. William H. Dieffenbach; first vice president, Dr. Robert T. Morris; second vice president, Dr. Lefferts A. McClelland; third vice president, Dr. Walter Gray Crump; secretary, Dr. Maximilian Stern.

NORTH CAROLINA

Hospital News.—The president and board of trustees have announced to physicians of the state the opening of the North Carolina Orthopaedic Hospital at Gastonia. Charity service will be rendered to children who are unable to pay, and a moderate charge will be made to others.

OHIO

Public Health Conference.—The second annual conference of health commissioners with the state department of health will be held, September 12-16, at Columbus. The annual meetings of the Mississippi Valley conference on tuberculosis and of the Ohio Public Health Association will be held in Columbus at the same time.

OREGON

Personal.—Dr. Ross H. Skillern, Philadelphia, was the guest of the Portland Oto-Ophthalmological Society for the first week of August, during which time he gave an intensive clinical and didactic course on the accessory nasal sinuses.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Louis Brody sustained a fractured elbow when he was knocked down by a twisting hose at a fire.

Campaign to Guard Motherhood.—A campaign for better protection of mothers before and immediately after childbirth has been started by the department of public welfare. This step was decided on because investigation of records showed 1,635 deaths in this city during the last six years among mothers, due directly to accidents or disease incident to childbirth.

TEXAS

Personal.—Dr. Sarah Rudnick, Houston, after a year with the American Commission in Serbia, is acting as house physician, for the summer, at the American Memorial Hospital, Rheims, France. Dr. Rudnick will return to America in October.

UTAH

Cooperation for Health Work.—Representatives of the Utah Public Health Association, the state board of health, and the U. S. Public Health Service met with the Webber County Medical Association, August 3, at Ogden, for the discussion of a program for investigation of tuberculosis and child hygiene work, on a state-wide basis. A traveling clinic has been equipped for the purpose, and Surg. Carlisle P. Knight, Jefferson City, Mo., has been detailed to take charge of it.

WISCONSIN

Personal.—Dr. Eduard Miloslavich, formerly director of pathology, Institute of the Vienna (Austria) Military Hospital, has been appointed a full-time professor of pathology and bacteriology at the Marquette University School of Medicine, Milwaukee.

"Home-Coming" Meeting.—The State Medical Society of Wisconsin will celebrate its seventy-fifth birthday by a "home-coming" meeting to be held, September 7-9, in Milwaukee. All former Wisconsin physicians are invited to return to the Badger state at this time; and they will confer a favor by sending their names and present addresses to Dr. Rock Sleyster, secretary, Wauwatosa.

CANADA

New Building for Anatomy.—A new anatomic building for the University of Toronto is to be erected on the west side of Queen's Park, and is to be ready for the session of 1922-1923.

Dominion Medical Council.—Dr. Robert G. Brett, lieutenant-governor of Alberta, has been elected president of the Dominion Medical Council; Dr. Louis P. Normand, Three Rivers, Quebec, vice president, and Dr. Robert W. Powell, Ottawa, secretary (reelected).

Personal.—Dr. William A. Young, Toronto, has returned from spending several weeks at Asbury Park, N. Y.——Dr. Jessie A. McBean, Toronto, has left for China.——Dr. John W. Shaw, Clinton, Ont., has been elected president of the Ontario Health Association, and Dr. J. J. Middleton, Toronto, secretary.

Hospital News.—The west end of the city of Toronto is to have a new hospital by the conversion of the Sacred Heart Orphanage, owned by the Sisters of St. Joseph. It will have grounds of 9 acres and is situated at Sunnyside, immediately overlooking the extensive board walk and driveway along the Lake Ontario front.

Reorganized Medical Alumni Association.—The medical college alumni of Manitoba at Winnipeg has been reorganized with Dr. Neil J. Maclean as president; vice president, Dr. William W. Musgrove, and secretary-treasurer, Dr. Ross Mitchell, at 811 Boyd Building, Winnipeg. Dr. Samuel Prowse, the dean of the medical college, states that the requirements for securing the $500,000 of the Rockefeller Foundation will be fully met and another new building will be erected on the college grounds. Dr. Harry J. Watson, Winnipeg, has been elected convener of a special committee of the Alumni Association to raise $15,000 for this purpose.

GENERAL

Congress on Otology.—An international congress on otology has been planned to meet in Paris in the latter part of July, 1922.

American Roentgen-Ray Society.—The twenty-second annual meeting of the society will be held, September 27-31, at Washington, D. C.

Uniform Endorsement Certificates Adopted.—The Board of Medical Examiners of North Carolina, June 23, adopted the uniform reciprocating endorsement certificate prepared last March by a special committee of the Federation of State Medical Boards. The licensing boards of the District of Columbia, Georgia and Idaho have signified their intention of adopting a similar form of certificate.

Western Society of Psychologists.—The society, meeting as a part of the convention of the American Society for the Advancement of Science, held at Berkeley, Calif., August 5, elected Dr. Lewis M. Terman, Leland Stanford Junior University, San Francisco, as president of the Western Society of Psychologists. Dr. E. C. Coleman, University of California, was made vice president, and Dr. Edmund Conklin, University of Oregon, secretary-treasurer.

American Gastro-Enterological Association.—At the twenty-fourth annual meeting of the association, held at Boston, June 6-7, the following officers were elected for the coming year: president, Dr. Allen Jones, Buffalo; vice presidents, Drs. George B. Eusterman, Rochester, Minn., and R. Walter Mills, St. Louis; secretary, Dr. Arthur F. Chace, New York; treasurer, Dr. Clement R. Jones, Pittsburgh, and recorder, Dr. Ernest Gaither, Baltimore.

Personal.—Dr. Olof Larsell, former associate professor of zoology at Northwestern University Medical School, Chicago, has been appointed professor of anatomy at the University of Oregon Medical School and assumes his new duties, July 28.——Dr. P. H. Aaser, director of the Norwegian State Hygienic Laboratory, Christiania, is visiting prominent laboratories in the United States for the purpose of studying their organization, equipment and functions.——Dr. Murayama of Japan is visiting various medical institutions in this country.

Willis-Campbell Prohibition Bill Goes to Conference.—The Willis-Campbell bill prohibiting the sale of beer for medicinal purposes passed the Senate by a vote of 39 to 20. It had previously been adopted by the House of Representatives and now goes to conference. The prohibition of physicians prescribing beer to patients remained virtually the same in the measure as it was passed by the House. Wine prescriptions were also limited to one-fourth of a gallon and

spirituous beverages to one-half pint to an individual in ten days. No change was made in the House clause fixing 100 prescriptions as the maximum for a physician in ninety days except under special order from the prohibition commissioner. An amendment made by the Senate not dealing with the medical feature of the bill prohibits searches or any attempts at searching of private property and premises without a search warrant.

United States Public Health Service Officers on Duty in England.—Congestion in the ports of the United Kingdom and the recent outbreak of typhus in Russia and the Balkans has caused the U. S. Public Health Service to send American surgeons to England to take charge of inspection and handling of emigrants to America and the fumigation of ships for rats and vermin. No sailing permits are issued to second and third class passengers for the United States until they have submitted to medical inspection. Dr. William J. Pettus, Charleston, former assistant surgeon-general of the United States, is in general charge. Dr. Burr Ferguson, Fairfield, Ala., has charge of the ports at London and Southampton, and Dr. N. B. Robinson, Carter, Tenn., at Liverpool.

National Health Council Issues Biweekly Reports on National Health Legislation.—The National Health Council has been issuing biweekly summaries of national legislation on public health since last March. These summaries abstract all health bills when introduced and report progress on these bills. The first eight statements, covering the period from March 4 to July 7, 1921, have listed about eighty bills, dealing with some phases of public health. Forty-four of these have been discussed at length and their progress carefully followed. These reports were intended primarily for members of the council but the demand for them has been so great that arrangements have been made to supply copies to others interested in keeping track of pending legislation. Further information regarding these bulletins can be secured by addressing the Washington office of the National Health Council, 411 Eighteenth Street N.W., Washington, D. C.

Resolutions of the Medical Board of the Johns Hopkins Hospital.—The resolutions limiting the fees of surgeons operating at the Johns Hopkins Hospital and the fees for hospital visits made by physicians recently passed by the trustees on the recommendation of the Medical Board, are reported to be:

WHEREAS, The trustees of the Johns Hopkins Hospital desire that all patients may leave the hospital feeling that they have received not only proper professional, nursing and administrative service, but also that they have been dealt with fairly in every particular, including charges for medical and surgical service; and

WHEREAS, The trustees believe that the members of the staff likewise desire this result and will continue to cooperate in carrying out the policy of the hospital as considered for the best interest of the patients and the hospital; therefore, be it

Resolved, That the following regulations be adopted:

1. That members of the staff shall bring promptly to the attention of the director of the hospital any conditions or circumstances which they feel justify criticism and should be corrected, also any just complaints uttered by their patients or the friends and relatives of patients, applying either to the professional service or to the management.

2. That all fees to be charged for services rendered any patients in the private rooms of the hospital shall be subject to the jurisdiction of the committee on fees, and shall in no case exceed the amounts stated below, except where the consent of said committee shall have been obtained; it being understood, however, that all fees charged shall in no case impose a hardship upon those responsible for their payment and shall be arranged in advance of admission wherever possible, or as soon thereafter as possible.

(*a*) Professional service by physicians, $35 per week, which includes at least three visits by the patient's physician.
(*b*) Consultation fees, $25.
(*c*) Maximum fee for major operation, $1,000.
(*d*) No consultation fee shall be charged patients entering the public wards when the examination has been made anywhere in the hospital.

3. That not more than 10 rooms shall be at the disposal of any one member of the staff at one time if the private rooms are in demand by other members of the staff having the same privilege.

Further Opposition to Sheppard-Towner Bill.—Continuing her opposition to the Sheppard-Towner Maternity Bill, Miss Alice Robertson, the only woman member of Congress, has declared in a signed statement that this bill in "its salient feature is not tangible help of the kind the general public infers would be given, but the establishment of an autocratic, undefined, practically uncontrolled, yet federally authorized center of propaganda." Miss Robertson challenges the accuracy of statistics presented by the advocates of the bill, saying that "they might find difficulty in passing the Ananias test. Because of the inexplicable failure of the majority of states to keep an official record of infant birth and mortality, necessary data for the required work could not be obtained. Registration gives the new-born a national and a state entity. . . . Because of lack of registration, the United States can only infer and conjecture without facts." Miss Robertson attacks Senator Sheppard of Texas, one of the authors of the bill, and points out that in Texas there is no birth registration law and no accurate information on the subject of infant mortality. The same statement is made by her also with reference to Iowa, the home of Congressman Towner, co-author of the bill. She said in part:

We can only conjecture that the mortality of mothers and infants in this nonregistered state is probably much greater than is dreamed by its splendid citizenry, and it might not be presumptuous to suggest that the women of Iowa, led and enthused by corresponding efforts of Messrs. Kenyon and Towner, would demand, through state action, this right of the new born.

In the meantime, throughout the land, wherever at the supreme hour there is need, the good Samaritan neighbor woman is ready to help as best she may, though her willingness may be unskilled. In due time, the Federal Children's Bureau, purveyor of "instruction," will possibly arrive and give "instruction" to the effect that medical attention should be secured and proper food, bedding, baby clothes and a trained nurse be provided, for none of which appropriations are authorized in the Maternity Bill.

Were the pitiless light of real publicity turned upon the methods which have brought the "Maternity Bill" thus far toward enactment, its most ardent proponents, in my belief, would in all fairness be compelled to allow time for the, as yet, unheard majority of women who know nothing of its proposed legislation to learn the facts and speak for themselves.

LATIN AMERICA

Tropical Disease Prize.—The *Revista Médico-Quirúrgica de Tegucigalpa*, Honduras, announces that prizes will be granted on September 15, for the best works submitted on tropical diseases and other medical and surgical subjects. The first prize will be a gold medal. The contest is limited to Central Americans.

Professor Labbé to Lecture at Buenos Aires.—The *Presse Médicale* states that Prof. M. Labbé of Paris is on the point of leaving for Buenos Aires where he has been invited by the medical faculty to deliver a series of lectures on biology as applied to the clinic. Professor Brumpt is to follow him next year to lecture on parasitology.

Child Welfare Congress in Central America.—The first Central American Child Welfare Conference will be held at San José, Costa Rica, beginning September 15. Among the most important subjects to be discussed are: children's diseases, milk hygiene, open-air schools, wards for tuberculous children, infant mortality, establishment of children's hospitals, dietetics, child culture and house sanitation.

FOREIGN

International Hygiene Exposition.—Amsterdam is planning an international hygiene exposition to open Oct. 15, 1921, which is to include practical demonstrations of prophylaxis against malaria, tuberculosis, venereal disease, and repression of quackery, etc. Dr. M. de Hartogh is secretary; his address is Plantage Middenlaan 1, Amsterdam.

Psychanalysis Prize.—The *Nederlandsch Tijdschrift* relates that the prize founded by Prof. S. Freud in 1918, with an endowment given by A. von Freund, was awarded first to Dr. C. Abraham and Dr. E. Simmel, both of Berlin. The prize is given for the best scientific work on medical psychanalysis. The latest award was to Dr. A. Stärcke, the physician in charge of an asylum at den Dolder, the Netherlands.

Conference on Index of Nutrition.—At the request of the Quaker commission providing supplementary food for Berlin schoolchildren and students, a conference was summoned to discuss ways and means to select from the candidates those most in need of nourishing food. The conference was presided over by Mr. Scattergood, the president of the German central committee of the Quaker organization, and Professor Czerny was the spokesman for the medical profession. The decision as to the most instructive standard index was left to a special committee of seven members and three additional experienced medical school inspectors.

Deaths in Other Countries

Dr. **E. Pfeiffer** of Wiesbaden, a prominent internist and writer on deranged metabolism, aged 75.——Dr. **W. W. Contris**, a dentist of Mexico City, fatally burned while working in his laboratory.——Dr. **Revillett** of Cannes.—Dr. **H. Leguizamón** of Buenos Aires, a well known writer on medical and political topics and general literature, and on measures to raise the standard of medical education.——Dr. **E. Allende** and Dr. **R. N. Bonora**, both also of Buenos Aires, the latter chief of the Flores dispensary.——Dr. **K. Edel**, a psychiatrist of Berlin, aged 84.

Government Services

Distinguished Service Medal

Lieut.-Com. Ralph W. McDowell, M. C., U. S. Navy, has been awarded a distinguished service medal for exceptionally meritorious and distinguished service as sanitary inspector and surgeon of the arrondissement of Tours, France.

Transferred from Bureau

Lieut.-Com. Harry H. Lane, M. C., U. S. Navy, who has been in charge of the hospital corps division of the Bureau of Medicine and Surgery, has been detached from the bureau, and after a short tour of duty and observation at the Mayo Clinic, Rochester, Minn., will be assigned as operating surgeon to the hospital at the Naval Academy, Annapolis, Md.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 25, 1921.

Annual Meeting of the British Medical Association

The eighty-ninth annual meeting of the British Medical Association was held at Newcastle-on-Tyne. Though successful in every other way, the attendance of members was below the average, numbering only some 800. This small number is to be ascribed to the depressed financial condition of the country which is the result of the war and the great industrial unrest following it, culminating in the disastrous coal strike, the most prolonged stoppage of work in the great industries on record.

PROFESSIONAL SECRECY

As shown in previous letters, the refusal of courts to recognize any right of the physician to professional secrecy has aroused considerable hostility in the profession. The subject came before the representative meeting of the association in the form of the motion: "That when a physician refuses to divulge information which he has obtained in the exercise of his duties in such circumstances as the following: (*a*) where a court has ruled that information so obtained must be disclosed; (*b*) when it is already provided by law that he must do so, for instance in the notification of infectious diseases, such action must be taken entirely on his own responsibility, and the association cannot be expected to protect him from the consequences. That if attempts be made to add additional exceptions to the general rule of the profession as regards secrecy, the association recognizes that it will be necessary after consideration (1) to resist by all lawful means any such encroachment, and (2) where such encroachment is attempted to accord support by any means in the power of the association." This resolution had been adopted by the Central Ethical Committee of the association. It fell short of the wishes of the meeting which, after a prolonged discussion, carried the following amendment by a large majority: "That the association use all its power to support a member who refuses to divulge, without the patient's consent, information obtained in the exercise of his profession, except when it is already provided by law that he must do so."

FEDERATION OF OVERSEAS BRANCHES

A representative of the Australian Federal Committee explained that the Australian branches had to deal with the governments of independent states of the commonwealth and could not conduct business through the central office of the association in London. They had thus to do more for their members than branches in the United Kingdom. They had their own journal, their own libraries and their own buildings. They found that they could best serve their purposes by becoming corporate bodies registered under the companies acts of their respective states, exactly in the same way as the association in the United Kingdom is registered. But this had given rise to certain legal and administrative difficulties in dealing with the parent body. A resolution recommending the council to make provision in the regulations, if possible, to allow the overseas branches to retain the character and status of branches, although incorporated, was carried unanimously.

AFFILIATION WITH MEDICAL AND NONMEDICAL BODIES

The subject of affiliation with medical and nonmedical bodies was discussed at the representative meeting last year, when it was agreed that the association should take steps to obtain further powers to be able to federate with other medical bodies. Much doubt was now expressed as to the advantage of this course. It was pointed out there were only four medical societies, with a membership of 2,900, of whom 1,500 were already members of the association, likely to federate. Moreover, another body, the Federation of Medical and Allied Societies, was trying to bring about such federation. By a large majority it was decided to rescind the contemplated federation with other bodies.

THE PRESIDENTIAL ADDRESS

The president, Dr. David Drummond, took for his subject "The Medical Profession" and indicated the need for progress in certain directions. In many cases diagnosis was only a matter of opinion until cleared up by a necropsy. He regarded greater facilities for making necropsies as the most important step toward a rational scheme of postgraduate training. He had little doubt that the opposition of the public would soon vanish were the incalculable service to the science of medicine made sufficiently clear. The diagnosis of incipient disease was at once the most difficult and the most important problem the physician had to face, and yet but little attention had been given to it. Comparatively few physicians were familiar with the range of the limits of health as signified by signs evident to the trained senses; for instance, failure to recognize the fact that our stethoscopes in the examination of chests detected the widest possible differences in normal individuals had been the source of much error. During the war thousands of perfectly healthy young men were graded low or rejected on account of the erroneous interpretation of some physical sign. In the same way, assurance problems were settled incorrectly on similar grounds. When we recognized that a comprehensive knowledge of the functions of man with the indications of their working were necessary to detect abnormalities, it was plain that the normal state demanded very special attention, for we were dealing with what was at once the most perfect and the most faulty machine of creation.

VISCERAL SYPHILIS

In the Section of Medicine, Sir Clifford Allbutt emphasized the rapidity of generalization of the virus by way of the lymphatics; a syphilitic septicemia was soon set up associated with fever, rashes, anemia and leukopenia. In 70 per cent. of cases the aorta showed histologic evidence of infection, and it might be at a very early stage. Angina pectoris might be an early symptom. In the ventricles, syphilitic disease was not common, but there might be an atrophic fibrosis as the result of coronary disease. In the lungs, fibrosis and bronchiectasis might result. The alimentary canal below the esophagus escaped as far as the rectum. Gumma of the kidney was rare. The central nervous system might be infected very early, often in those cases with little "secondary" manifestation. A periarteritis was essential; the Wassermann reaction might be positive in the cerebrospinal

fluid and negative in the blood, and a positive test might be found in the absence of nervous symptoms. Lumbar puncture should be performed at every stage, and if necessary treatment by intraspinal as well as intravenous injection.

Professor Reynolds considered that in any disease which did not run a typical course, syphilis should be suspected. The Wassermann reaction was to be regarded as a piece of evidence and not as a verdict, and if physicians were better educated, lumbar puncture would not be so often required; a positive Wassermann reaction in the cerebrospinal fluid did not necessarily mean that the patient's trouble was syphilitic.

ACUTE PLEURAL EMPYEMA

In the Section of Surgery, Mr. Henry Wade opened a discussion on acute pleural empyema. He said that before the war it had been found that in acute peritoneal infections the less drainage and the more rapid closure of the cavity, the better the results. In the thoracic and knee-joint surgery the same held. A combined cytologic and bacteriologic examination of the fluid withdrawn should be more widely employed as affording fuller and more accurate data on which to found operative treatment. Suppuration within the pleural cavity was specially suitable for treatment by methods which obviated the necessity for opening that cavity, or by methods whereby an immediate or early closure after it had been opened was carried out. The value of aspiration alone should again be carefully reviewed, and consideration be given to the methods introducing antiseptics, such as Murphy's 2 per cent. dilution of liquor formaldehydi in glycerin, into the emptied cavity. Aspiration would require to be frequently performed. If simple drainage was practiced, the ideal opening was one which both allowed free escape of the pus at the time and permitted ready closure after the tube was withdrawn. The benefits to be derived from a free opening of the pleural cavity by major intercostal thoracotomy warranted its employment in cases which gave promise of developing into chronic and persistent cases. The value of disinfection and immediate closure in the latter cases should be more fully tested. He recommended the Rutherford Morison technic employing "bipp."

BORDERLAND CASES

In the Section of Neurology and Psychiatry, Prof. G. M. Robertson opened the discussion on borderland cases. He pointed out the difficulty of drawing a hard and fast borderline between cases of neurosis and those which had progressed to definite mental disease. The type of case which he discussed particularly was that whose chief symptom was mental depression. Every melancholic was at one stage or another a potential suicide, and the risk was greatest when the patient was least deranged—that is, in the early stage or in convalescence. Melancholia was the commonest form of psychosis, and the form most often treated outside a mental hospital. He advised every physician not a psychiatrist to call in consultation, if only for his own sake, some expert in mental disease, when he was responsible for the treatment of a depressed person.

EVOLUTIONARY WOUNDS

The popular lecture on this subject was delivered by Sir Arthur Keith to the equal delight of the lay and medical elements of a large audience. In his usual luminous and philosophic vein he likened the clefts in the upper lip of the human embryo to wounds, and showed that they were closed by the same process. He took for comparison a wound in the cornea, as here the healing was not masked by bleeding or vascular reaction. It was mended by a threefold process: (1) A temporary fibrinous bond united the cut edges; (2) into this bond grew connective tissue elements from each margin of the wound until they met and filled the gap; (3) fluid collected on each side of the wound which had the mechanical advantage of pressing the edges together. In the healing of the embryonic cleft there was the same threefold process: A temporary bond was formed by fusion of the epithelium, which covered the edges of the cleft; across this bond the opposite connective tissue elements pressed and united under the influence of homotactic attraction; the edges of the cleft were pressed together by fluid which collected in the spaces of the adjacent connective tissue. On a grander scale the operation of healing was observed in the closing in of the neural plates to form the brain and spinal cord, which occupied the fourth week of development. A section showed the epithelial neural plate being folded in, carrying at its lateral and rising margins the ectoderm or embryonic skin. The raising up and bringing together of the lateral margins of the neural plate depended on the new swarm of neuroblasts migrating to and becoming packed in the deeper or circumferential margin of the plate. The margin of the neural tube came together just where the skin epithelium became continuous with the nerve epithelium. No sooner had contact been established than by homotaxis the skin epithelium on each side of the embryologic wound broke its connections with the nerve plate and effected union across the site of the median fissure. The neuroblasts also adhered and regrouped themselves to form the roof plate of the neural tube. Thus, in less than forty-eight hours after the lateral margins of the neural folds came into contact at any point, all traces of the great evolutionary wound had been obliterated. No sooner had these epithelial unions taken place than connective tissue elements lying on either side of the median tube began to spread upward to meet and unite across the median dorsal line where only a short time before existed an open wound. Out of the bridge of tissue which thus came to lie between the skin and roof of the nerve tube were fashioned the membranes of the cord and brain and all the bony and fascial tissue which helped to roof over the great central nervous system. Failure of the healing of the great dorsal median evolutionary wound meant spina bifida. The orderly series of peritoneal adhesions which took place in the fetus in adaptation ot the plantigrade posture of man was another example of evolutionary healing. It seemed to be accomplished without the forming of any exudate. A similar process was observed in the closure of the opening between the peritoneal and pleural cavities. The fashioning of the heart involved similar closures and was an unsurpassed feat in plastic surgery.

PARIS

(From Our Regular Correspondent)

July 29, 1921.

Campaign Against Cocainomania

Dr. Marcel Briand, physician to the Sainte-Anne Hospital, and Professor Cazeneuve, member of the Academy of Medicine, presented at the last session of the administrative council of the Ligue d'hygiène mentale a plan of campaign against cocainomania. In view of their presentation of the situation, the Ligue d'hygiène mentale decided to ask the minister of justice, the prefect of police and the director of the secret service for a more efficient repression of the criminal actions of traffickers in narcotics, and especially in cocain. This campaign seems all the more justified because the traffic in cdcain has increased to a considerable extent of late, and recently Dr. Courtois-Suffit, physician to the Paris hospitals and medical expert to the courts, submitted to the Academy of Medicine, in collaboration with René Gizoux, intern of the Paris hospitals, an interesting report, based on judicial documents, in which they showed how inadequate was the repression of the traffic in cocain. The present general conditions have greatly facilitated the extension of this vice. Besides professional traffickers, our troops of occupation have, since the armistice, contributed markedly to the spread of the drug. French and allied soldiers became traffickers, tempted by the

immense profits that the Germans held out to them. They have been bringing back to their abodes in France large quantities of toxic drugs. Here they dispose of their stock to agents or visit well known bars, where steady customers come to purchase the powder so much sought after and for which such high prices are paid. The favorable rate of exchange between France and Germany has added to their already handsome profits. Cocain addicts deprived of their excitant are ready to make any sacrifice in order to obtain a supply, and the most exorbitant prices are paid. When they have no money with which to purchase their drug, they do not hesitate to sell anything they may possess rather than live without their poison. Thus it is not rare to see members of the demi-monde, reduced to a state of frenzy, exchange their jewels and furs for the "powder that inebriates"; or they may become professional traffickers. A more strict vigilance in Paris has forced the traffickers to carry their stocks to other towns; especially in the south, in Nice, Monte Carlo, Toulon, Biarritz, Marseilles, Cannes, etc. As the result of observations made by certain magistrates, the government has decided to draft a law that will give added force to present legislation, which is manifestly inadequate. This bill is aimed principally at the opium dens, but it is probable that the text that will be submitted to parliament will include traffickers in all narcotic drugs.

Death of Gabriel Lipmann

Prof. Gabriel Lipmann, one of the most famous French physicists, to whom we owe the discovery of color photography, died recently at the age of 73. This famous scientist died on board the steamship *La France*, during the return voyage of the mission headed by Marshal Fayolle, which was organized by the Franco-American committee to express to Canada and the United States the gratitude of France. Professor Lipmann was a member of this mission. He was born at Hollerich, near Luxemburg, in 1845, of French parents. He studied in Paris, and in 1883 was appointed professor at the Sorbonne. He was elected a member of the Academy of Sciences in 1886. In 1891 he discovered the process of reproducing photographically things in their natural colors, based on the principle of light interference. This discovery won for him the Nobel prize for psysics in 1918.

Arsphenamin Shock

The shock produced by injections of arsphenamin is generally attributed to the presence of arsenoxid, and complying with the request of Dr. Queyrot, physician to the Paris hospitals, certain manufacturers have decided to indicate on the label the arsenoxid content. From experiments on dogs made by Dr. Pomaret, it develops that the arsenoxid found in arsphenamin and neo-arsphenamin has a marked tendency to produce high blood pressure. Thus it could not be held responsible for the "nitritoid crisis," which is characterized mainly by arterial hypotension. Dr. Pomaret presented a very interesting communication on this subject at the last session of the Société française de dermatologie et de syphiligraphie. He believes that arsphenamin shock is due to a precipitation of albumin in the blood through the phenolic character of arsphenamin and neo-arsphenamin. The same mechanical and physiologic phenomena are observed with regard to trinitrophenol, which thus eliminates the rôle we are tempted to attribute to the arsenic of the arsphenamin molecule.

First Congress of the International Society of Urology

The first congress of the International Society of Urology has just been held under the chairmanship of Dr. Legueu, professor of clinical diseases of the urinary organs at the school of medicine of the University of Paris. The opening session was presided over by the minister of public instruction, who was accompanied by Prof. E. Hurry Fenwick, president of the International Society of Urology, and by the officers of the society. The meeting was first addressed by Professor Fenwick, who traced the history of the formation of the International Society of Urology and emphasized the importance of international scientific associations as regards the progress of science.

These three questions were discussed: (1) Nephritis with Uremigenic Syndrome; essayists: Prof. J. Teissier, Lyons; Dr. Foster, New York, and Dr. Albert Hogge, Liége; (2) Remote Results of Treatment of Traumatisms of Urethra; essayists: Drs. O. Pasteau and Iselin of Paris; (3) Pyelography; essayists: Dr. Edmond Papin, Paris; H. H. Young, professor at Johns Hopkins Hospital, Baltimore, and C. A. Waters, assistant roentgenologist at Johns Hopkins Hospital. Two of these questions are of general interest.

Nephritis with Uremigenic Syndrome

Prof. J. Teissier emphasized especially the important rôle played by the liver in the development, the tolerance and the evolution of nitrogen retention. Conservation of the regular functioning of the liver is the central feature of antitoxic regulation and the primary factor of defense against dangers of hyperazotemic and ammoniacal intoxication. Ammonia is the causative agent, direct or intermediary, but surely testifies to intoxication of ureal origin. In addition to the maximal degree of concentration of urea in the blood, as the immediate cause of auto-intoxication in nephritis, ammoniemia constitutes a regular phenomenon which is parallel to the retention of urea in the blood. The prognosis of azotemic nephritis is directly dependent on this double condition. From a therapeutic standpoint, Teissier notes the good effects of organotherapy, applied early in the disease against accidents of nitrogen retention, and the useful effect of serotherapy with serum from the renal vein of a goat (excitation of the protective action of the hepatic gland). Dr. Foster distinguishes three types of uremia: (1) the eclamptic type, due to a specific toxin, with moderate azotemia; (2) the lethargic type, due to slow intoxication by urea, creatinin, etc., with intense azotemia, and (3) the serous type, caused likely by a serous encephalitis, and characterized by an excess of sodium chlorid in the blood. Uremia corresponds, practically, in all its forms to renal insufficiency. However, it is probable, but not yet certain, that the degree of this insufficiency is in proportion to the number of destroyed anatomic elements. Dr. Albert Hogge emphasized the fact that the clinical picture of "uremic" intoxications is often masked or disturbed, in internal medicine, by the symptoms of the condition causing the nephritis, and in surgery, by infectious phenomena and inflammatory complications. Renal insufficiency, as a rule, has thus far been better determined by clinical signs, by the quantity of urea in the blood and, possibly, also by the determination of nonureal nitrogen. Ambard's constant must not be substituted for other means of investigation. When the daily secretion of urine and the azotemia are satisfactory, the density of the urine is normal, and albumin and sugar are absent, it is useless to determine the constant. It is only in cases in which these factors are doubtful or indecisive that it may be indicated to resort to Ambard's test. Hogge holds the opinion that before every important surgical operation we should inquire into the functional capacity of the kidneys, by ascertaining the ureal nitrogen and the nonureal nitrogen of the blood; the albumin; the sugar, and the density of the urine. We must be suspicious of persistent oliguria and, if this exists, examine the myocardium thoroughly, in order to abolish asystole by the most active and quickest means. For similar reasons, and in order to ward off the dangers of postoperative renal insufficiency, we must use the anesthetics that are the least harmful to the kidneys. Dr. Maurice Chevassu, surgeon to

the Paris hospitals, has stated that the surgical treatment of medical cases of nephritis has brought nothing but disappointment. For those who may still be tempted to use surgical intervention, Chevassu advises the use of local anesthesia by means of a single puncture beneath the twelfth rib, in order to act on the kidneys with a minimum of intoxication. This method makes it possible to bathe successively with anesthetic the region of the lumbar intercostal nerves and the vertebral plane in the region of the pedicle of the kidney. Pousson of Bordeaux does not believe that surgical intervention is indicated in medical cases of nephritis so long as the health of the patient remains satisfactory under dietetic regimen and symptomatic medication. But when the patient has reached the cachectic phase, which is recognizable by the paleness of the skin, a slight puffiness of the face, flying edemas, dyspnea on the slightest effort, slight albuminuria, a few casts, with decrease of urea and of urinary salts, decapsulation (to which Pousson adds nephrotomy applied to at least one of the kidneys) may render excellent service.

BERLIN

(From Our Regular Correspondent)

July 12, 1921.

Results of Typhoid Vaccination

During the period from 1918 to 1919, approximately 31,000 persons in Prussia were vaccinated against typhoid. This number includes more than 14,000 cases in which vaccination was carried out at the instance of the commander of the British troops of occupation in Euskirchen. The reaction following the injections was usually moderate; occasionally more severe but benign inflammations of the skin and the subcutaneous cellular tissue, which, however, retrogressed promptly, were observed. In a few cases there was considerable fever. The inoculation of a child, aged 1½, with a slight dose was well borne. In Euskirchen scrofulous children were vaccinated without any disturbing results. However, it was found that caution must be observed in vaccinating tuberculous subjects. Forty-five vaccinated persons came down with typhoid soon after the inoculation, eight cases being grave and two ending fatally. One woman took the disease although she had recently been twice vaccinated. The course of the disease in this instance was, however, mild. The official report draws from the results the conclusion that, while vaccination against typhoid does not furnish absolute protection against the disease, nevertheless the small number of those that take the disease after vaccination warrants the application of the method to check epidemics. As for the effect of vaccination on the course of typhoid epidemics, it has been repeatedly observed that the epidemics die out very soon after vaccination is instituted. The results of the vaccination that was carried out with British vaccines in the governmental district of Cologne are especially worthy of note. After 129 cases of typhoid had been reported, the British military authorities ordered the compulsory vaccination of all persons from 6 to 45 years of age. Altogether, 14,343 persons were vaccinated—in fact, they were vaccinated twice—with a vaccine that was mixed with paratyphoid A and B. The reaction was not more severe than with the German vaccine. It was not observed to exert an unfavorable influence on pregnancy or lactation. It could not be seen that exacerbations of chronic diseases were thereby produced, with the exception of one not fully explained case of advanced tuberculosis. In numerous cases still in the incubation stage, the vaccination hastened the development of the typhoid infection and thus led to the earlier recognition of those infected. In general, a favorable influence on the severity of the disease was recognizable. It is quite characteristic that in Essen the organization of the antivaccinationists opposed also typhoid vaccination.

Marriages

GEORGE ARTHUR WHITE, Cambridge, Mass., to Miss Margaret C. Wallace of Roxbury, Mass., August 10.

LLOYD ROBERTSON REYNOLDS, San Francisco, to Miss Catherine Crellin at Claremont, Calif., August 3.

H. KRUEGER KAPRIELIAN, Stamford, Conn., to Miss Flora Grant of New York City, August 6.

WILLIAM J. HANLEY, Kenosha, Wis., to Miss Mary Frances Burns of Watertown, Wis., June 22.

DANIEL S. QUICKEL, Anderson, Ind., to Mrs. Bertha I. Davis of Phoenixville, Pa., July 21.

RALPH EDWIN GRAY, Eldora, Iowa, to Miss Malie Gertrude Buford of Gorin, Mo., August 9.

GEORGE T. HARDING, Marion, Ohio, to Miss Alice Severns, at Monroe, Mich., August 11.

CHARLES C. GRATIOT to Miss Mary A. Peebles, both of Shullsburg, Wis., July 26.

Deaths

Gustav Mann, Houston, Texas; M.D., C.M., University of Edinburgh, Scotland, 1894; died while on a scientific oil mission at Tampico, Mexico, July 18. Dr. Mann was born in Dargeeling, East India, Nov. 6, 1864; B. Science, University of Oxford, England, 1898; professor of physiology, Tulane University, New Orleans, 1908-1916, after which he was appointed consulting chemist for the Freeport Oil Company, Houston, Texas. He was awarded the Dobbie Smith gold medal, the Ellis, Gunning-Victoria, Goodsir and Rolleston prizes for researches in physiology, and the Edinburgh gold medal for M.D. thesis. He was author of "Physiological Histology," in 1902, and "Chemistry of the Proteids," 1906; also articles on the evolution of flowering plants, comparative physiology of the brain, changes in nerve and gland cells, etc.

John Francis Croston ✙ Haverhill, Mass.; University of the City of New York, 1881, member of the board of health since 1883, and chairman at the time of his death; member of the school board 1882-1900; again elected in 1908 and reelected in 1910 and 1912; medical examiner for the Northern Essex district since 1892; during the World War served as chairman of the local draft board; died, July 30, from heart disease, aged 66.

Florence Hale Abbot ✙ Boston; Woman's Medical College of the New York Infirmary for Women and Children, 1867; formerly assistant physician at the Taunton Insane Hospital, and at Dr. Edward Mellus' Hospital, Newton, 1910-1915; member of the New England Society of Psychiatry, and the American Medico-Psychological Association; died, August 1, at the New England Deaconess Hospital, Brookline, Mass., aged 54.

Marshall L. Cushman ✙ Lansing, Mich.; University of Michigan, Ann Arbor, 1906; postgraduate courses in Berlin and Vienna; instructor in otolaryngology, University of Michigan; specialized in otology, laryngology and rhinology; during the World War served as captain, M. C., U. S. Army, in France; died, July 14, at the Millet Sanatorium, East Bridgewater, Mass., from tuberculosis, aged 38.

Franklin Rogers ✙ Com., M. C., U. S. Navy, Washington, D. C.; Bellevue Hospital Medical College, New York, 1872; assistant surgeon, U. S. Navy, 1872; medical inspector with rank of commander, 1898; last active duty, fleet surgeon on flagship *Brooklyn;* retired for physical disability, October, 1901; died, May 28, at the Naval Hospital, Washington, from acidosis; uremia, aged 70.

Robert Luddington Brown, Parkersburg, W. Va.; Jefferson Medical College, Philadelphia, 1881; member of the West Virginia State Medical Association; served in the Spanish American War; at one time a commander in the U. S. Navy; was found dead in bed, July 25, from heart disease, aged 67.

Aubert Durnell ✙ Walsenburg, Colo.; St. Louis University, St. Louis, 1909; coroner of Huerfano County; was found dead in his office, July 30, from heart disease, aged 40. He served in France as captain, 155th Infantry, M. C., U. S. Army, during the World War.

✙ Indicates "Fellow" of the American Medical Association.

William M. Bayliss, Clarence, Mo.; Kansas City Medical College, 1882; member of the Missouri State Medical Association; at one time superintendent of the Tuberculosis Hospital, Mt. Vernon; died, July 28, from a complication of diseases, aged 71.

Ross Edwin Prigden, El Paso, Texas; Tulane University of Louisiana, New Orleans, 1910; served as first lieutenant, M. C., U. S. Army, during the late war; died, August 3, following an operation for gallstones, at Rochester, Minn., aged 33.

Alonzo M. Morrison, Louisville, Ky.; University of Louisville, 1859; practitioner at Prospect for over fifty years; during the Civil War, served as major, M. C., Union Army; died, July 31, at the Russel Infirmary, Louisville, aged 83.

Amos Emanuel Fried ✙ Cleveland; Ohio Wesleyan University, Cleveland, 1913; on the staff of the Mount Sinai Hospital; served in the Army transport service during the late war; died suddenly, July 23, from heart disease, aged 39.

Jasper Muir Wilson, Pleasure Ridge, Ky.; University of Louisville, 1859; surgeon in the Union Army at Bowling Green and Louisville hospitals during the Civil War; retired from the Army in 1871; died, July 27, from senility, aged 89.

Charles Eastwick Smith ✙ St. Paul; University of Pennsylvania, Philadelphia, 1908; secretary of the state board of health since 1919; formerly on the staff of St. Joseph's Hospital, St. Paul; died, July 31, at the Miller Hospital, aged 38.

John Henry Marling, Baltimore; Trinity Medical College, Toronto, Canada, 1888; was found dead in the Patapsco River, August 1, believed to have drowned himself while suffering from despondency, due to continued ill health.

Charles F. Altmiller, Bloomsburg, Pa.; Medico-Chirurgical College of Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania; died, August 2, at Hazleton, Pa., from abscess of lung, aged 44.

John Calvin Felty ✙ Gettysburg, Pa.; University of Pennsylvania, Philadelphia, 1873; on the staff of the New Jersey Insane Asylum, Trenton, 1891-1915; died, August 6, from nephritis, aged 72.

Robert Matthew Ullrich, Brooklyn; Long Island College Hospital, Brooklyn, 1904; surgeon on the staff of the Ridgewood Sanatorium, where he died, July 27, following an operation, aged 47.

James S. Rawlins, Dancyville, Tenn.; University of Pennsylvania, Philadelphia, 1867; Confederate veteran; at one time president of the Memphis Medical Society; died, July 26, aged 74.

William F. Julien ✙ Gary, Ind.; Rush Medical College, Chicago, 1900; specialized in ophthalmology, otology, laryngology and rhinology; died, June 11, from pneumonia, aged 46.

John S. Green, Sr., Long Green, Md.; University of Maryland, Baltimore, 1882; member of the medical and chirurgical faculty of Maryland; died, August 2, aged 64.

Thomas J. Parker, Chicago; Western University, London, Canada, 1892; member of the Illinois State Medical Society; died, August 6, from cerebral hemorrhage, aged 56.

Walter R. Weedon, Eufaula, Ala.; Kentucky School of Medicine, Louisville, 1894; member of the Medical Association of the State of Alabama; died, July 2, aged 47.

Christopher James Musgrave ✙ New York City; University of the City of New York, 1887; formerly instructor in the Post-Graduate Hospital; died, July 29, aged 56.

Austin Mitchell, Racine, Wis.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1874; practitioner for nearly half a century; died, July 27, aged 73.

George W. Hixson, Cambridge, Ohio; Jefferson Medical College, Philadelphia, 1903; member of the Ohio State Medical Association; died, July 8, aged 49.

William E. Lamkin, Eugene, Mo.; Missouri Medical College, St. Louis, 1875; died, July 28, at Jefferson City, Mo., from cerebral hemorrhage, aged 72.

Charles W. McIntyre, New Albany, Ind.; University of Louisville, 1883; member of the Indiana State Medical Association; died, June 6, aged 81.

William B. Cogswell ✙ Stratford, Conn.; Bellevue Hospital Medical College, New York City, 1881; died, July 28, at the Galen Hospital, aged 67.

Arturo del Castillo, Key West, Fla. (licensed by the Florida State Board of Medical Examiners); died, July 23, after an illness of six months.

William Brooks Swasey, Cornish, Me.; Bellevue Hospital Medical College, New York City, 1867; died, June 2, from cerebral hemorrhage, aged 77.

George H. Burgin, Philadelphia; University of Pennsylvania, 1876; surgeon of the General Society of the War of 1812; died, July 31, aged 67.

John M. Boice, Sisterville, W. Va.; Medical College of Ohio, Cincinnati, 1878; died suddenly, August 2, from cerebral hemorrhage, aged 65.

John W. Bilbo, Russelville, Ind.; Medical College of Indiana, Indianapolis, 1891; died, July 24, from paralysis and chronic nephritis, aged 69.

William A. Lomison, Mt. Carmel, Pa.; Hahnemann Medical College and Hospital of Chicago, 1891; died, July 19, from pneumonia, aged 73.

Erwin Julius Kintzi, Los Angeles; College of Physicians and Surgeons (University of Southern California), 1919; died, July 19, aged 28.

Robert Seldon ✙ Catskill, N. Y.; University of Wooster, Cleveland, 1869; died, July 23, at the Samaritan Hospital, Troy, N. Y., aged 74.

Isaac B. Hacker, Reading, Pa.; Jefferson Medical College, Philadelphia, 1879; died, July 24, from a complication of diseases, aged 65.

Robert L. Davis, Sweetwater, Tenn.; Southern Medical College, Atlanta, 1891; died, July 7, from carcinoma of the liver, aged 66.

William Edgar Downie, Indianapolis; University of Louisville, 1912; took poison, July 22, following a nervous breakdown, aged 35.

John W. Pugh, Gas City, Ind.; Curtis Physio-Medical Institute, Marion, 1885; died, July 26, from cancer of the liver, aged 77.

Edward W. Brown, New Vienna, Ohio; Hahnemann Medical College, Philadelphia, 1879; died, July 28, from heart disease, aged 64.

John Frank, Bayonne, N. J.; Medical Department of Columbia College, New York City, 1880; died, July 19, aged 66.

Howard A. Fehr, Allentown, Pa.; Hahnemann Medical College of Philadelphia, 1894; died, July 17, from nephritis, aged 52.

James W. Snider, Mt. Eden, Ky.; University of Louisville, 1880; died, July 18, at his home in Avoca, Jefferson County, aged 62.

Simon Walter Brooks, Geneva, Ga.; Atlanta Medical College, 1886; died suddenly, June 24, from heart disease, aged 57.

James J. Mitchell, Gurdon, Ark.; St. Louis College of Physicians and Surgeons, St. Louis, 1883; died, June 16, aged 75.

Alfred Walton, Bangor, Me.; Bowdoin Medical School, Brunswick, 1867; died, May 31, from arteriosclerosis, aged 89.

Chapman C. Smith, St. Albans, Vt.; University of Vermont, Burlington, 1865; died, July 26, from senility, aged 80.

Anna T. L. Thomas, Biloxi, Miss.; Hahnemann Medical College and Hospital, Chicago, 1886; died, July 24, aged 68.

Archibald McDowell Bynum, Valentines, Va.; University College of Medicine, Richmond, 1913; died, July 18, aged 32.

John B. Elliot, Sr., Highlands, N. C.; Medical College of South Carolina, Charleston, 1867; died, June 26, aged 79.

Milton Burr Davis, Patchogue, N. Y.; Long Island College Hospital, Brooklyn, 1883; died suddenly, July 15, aged 61.

Frank Hurlock ✙ Philadelphia; Jefferson Medical College, 1881; died, July 24, from cerebral hemorrhage, aged 62.

George Franklin Baer, Pittsburgh; Hahnemann Medical College of Philadelphia, 1905; died, July 10, aged 37.

Camille Coté, Salem, Mass.; Montreal School of Medicine and Surgery, Quebec, 1879; died, July 14, aged 62.

Charles F. Johnson, Pruntytown, W. Va.; University of Maryland, Baltimore, 1879; died, May 31, aged 76.

Gilbert B. Ingalls, Mayfield, N. Y.; Long Island College Hospital, Brooklyn, 1872; died, May 25, aged 69.

John Milton Poindexter, Kansas City, Mo.; University of Louisville (Ky.), 1884; died, May 12, aged 65.

Manley J. Siler, Mercer, Tenn.; University of Louisville, 1875; died, July 4, from dysentery, aged 69.

John Munroe MacDonald ✙ San Francisco; University of California, 1891; died, July 23.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

IODINOL

An "Intensified Iodin" at an Intensified Price

Although reports on the composition and therapeutic efficiency of several of the so-called "organic iodin" preparations have been published,[1] THE JOURNAL still continues to receive inquiries concerning products of this type. In view of the general interest in the subject, it seemed worth while to examine "Iodinol," another member of this class. Iodinol is put out by the Toledo Pharmacal Co.; price to physicians: one dollar a pint. Concerning its composition, the manufacturer states that Iodinol is:

A water solution of organic iodin containing one grain of the element in each fluid drachm.

The circular describing Iodinol refers to the preparation as "intensified iodin"—whatever that may mean—but no information is offered concerning the nature of the "organic iodin" compound in Iodinol. Hence, the product is essentially secret in composition. In order to determine the character of the iodin in Iodinol, a specimen of the product was examined in the A. M. A. Chemical Laboratory. The chemists report:

"Iodinol is of the consistency of thin syrup, has a brown color and a peculiar, not unpleasant odor, resembling that of the official syrup of ferrous iodid. The reaction is strongly acid to litmus. On evaporation and subsequent ignition of the residue, the preparation leaves almost no ash. Reducing sugars are present in large amounts. The preparation darkens on the addition of ferric chlorid solution, thus indicating the presence of tannin. The absence of uncombined iodin is demonstrated by the fact that when chloroform is added to the preparation and the mixture shaken no violet color is produced in the chloroform layer. By adding ferric chlorid solution and shaking with chloroform, a violet color results. The addition of an excess of silver nitrate solution to a dilute aqueous solution of Iodinol immediately produces a precipitate of silver iodid. The dilute solution gives a yellow precipitate with lead acetate solution and a scarlet precipitate with mercuric chlorid solution. These tests indicate that the iodin in Iodinol exists in some combination which is as readily ionized as potassium iodid. After the precipitate with silver nitrate has been removed by filtration, the excess of silver removed by the addition of hydrochloric acid and a second filtration, the clear filtrate does not respond to tests for any form of iodin. These tests demonstrate that all of the iodin contained in Iodinol is present either in the form of iodid ions or in a combination which readily yields iodid ions.

"In a true 'organic iodin' compound, the iodin is so closely bound in the molecule that it can not be precipitated directly as an iodid by the soluble silver salts. Such a compound (or its decomposition products) is relatively more slowly absorbed in the organism than are the metallic iodids, and it is correspondingly less irritating to the digestive tract. Since all of the iodin in Iodinol is readily precipitated by silver nitrate solution, it is obvious that it can not be considered an 'organic iodin' preparation, either from the chemical or the therapeutic viewpoints.

"Quantitative determinations of the combined iodin in the specimen indicates that Iodinol contains about 1.708 gm. of iodin per 100 c.c., or about 7.78 grains per fluidounce. This is essentially the claimed iodin content (1 grain per fluidrachm or 8 grains per fluidounce).

"The examination indicates that Iodinol is an iodo-tannic preparation, probably similar to the iodo-tannic syrup official in the French Pharmacopeia, except that it is stronger in iodin than the French preparation."

A correspondent writes to THE JOURNAL:

The reason I have been using Iodinol is because it is a *relatively cheap and convenient way to dispense iodin for internal use.* I don't regard it as unethical, since the Council has failed to suggest a suitable substitute.

Iodinol is *not* "a relatively cheap . . . way to dispense iodin." Iodin in the form of Iodinol is about fourteen times more expensive than when purchased in the form of potassium iodid, and ten times as expensive per iodin unit, as sodium iodid. Furthermore, the Council has *not* failed to suggest a suitable substitute. The following true "organic iodin" preparations are described in New and Nonofficial Remedies:

	Per Cent. of Iodin
Iodalbin	21.5
Iodocasein	18.0
Iodoleine	26.0
Iodoleine	33.0
Lipoiodine—"Ciba"	41.0
Riodine	17.0
Sajodin	24.5

There is no secrecy about any of these iodin compounds and the physician may prescribe any of them with the expectancy of obtaining iodin effects. The results may be somewhat slower to appear in organic iodin therapy than by treatment with a soluble metallic iodid, owing to slower absorption, but the aggregate effects are identical under either form of treatment.

Concerning the results from the use of inorganic iodids, such as potassium iodid, the manufacturer of Iodinol states:

A destruction of the tubules of the kidneys may take place, nervous symptoms may develop and in a great many cases the heart becomes affected.

There is no creditable pharmacologic evidence to indicate that the administration of the inorganic iodids causes "a destruction of the tubules of the kidneys." The "nervous symptoms" and tachycardia usually occur in persons with thyroid dysfunction and do not take place "in a great many cases" as the Iodinol exploiters assert. Further, there is no evidence that iodism is less apt to occur after the use of organic combinations of iodin than after the administration of inorganic iodids of equivalent iodin dosage. In those instances in which iodism has followed the administration of potassium iodid and in which equivalent symptoms did not occur after treatment with iodin in organic combination, it has usually been shown that the iodin dosage was much lower in the latter cases than in the former.

The label for Iodinol states:

Iodinol in teaspoonful doses is equal in therapeutic action to 10 to 15 grains of potassium iodid with the minimum systemic disturbance.

This statement is absurd. "Ten to fifteen grains of potassium iodid" are equivalent to from seven and a half to eleven grains of iodin while one fluidrachm of Iodinol contains *less than one grain of iodin!* Discriminating clinicians and pharmacologists hold that, if a given quantity of iodin be administered in an absorbable form, it will produce essentially the same effects regardless of whether it be given as "inorganic" or as "organic" iodin.

Therapeutically, Iodinol is no better than a sweetened solution of potassium iodid of equivalent iodin content; economically, it is far more expensive than potassium iodid or the other official iodids; ethically, it is to be condemned because it is secret in composition and is sold under exaggerated, unwarranted and untruthful claims.

1. Iodalin: J. A. M. A., Dec. 12, 1914, p. 2149. Nourry Wine: J. A. M. A., Dec. 12, 1914, p. 2150.

Maladjusted Children.—To provide for the needs of the emotionally maladjusted child, schools should establish small classes, including not more than ten, in which the neurotic child could be more carefully studied. The attitude of the school toward this class should not be that it is a punishment, but that it is an attempt to treat the child's behavior as a symptom. The child should be sent back to the regular classes just as soon as possible. The neurotic child feels himself as a thing apart, and some of his behavior is due to the attempt to get back into the group. It would be wise, therefore, to make the adjustment not only during school hours, but also outside of them. This can best be done by intensive individual study of the child in the home and school and by placing him in contact with somebody outside of the school, such as a visiting teacher, who thoroughly understands him, who he knows has his interest at heart. It is to this influence on the part of a visiting teacher and psychiatric social worker that most of the improvement in our cases is ascribed.—L. Blumgart, *Mental Hygiene* **5**:339 (April) 1921.

Correspondence

THE PRESCRIBING OF ALCOHOL

To the Editor:—Articles appearing in THE JOURNAL and in other medical publications relative to the Volstead law and its amendments remind me of an incident in old Vermont in my student days. A friend who had been an excessive user of tobacco and too fond of alcoholics succumbed to chronic nephritis and pneumonia. Meeting his physician in a drug store not long afterward, I asked him, whether in his opinion, the excessive use of tobacco and alcoholics had not contributed materially to the sickness and death of my friend. He replied that probably it had, but that that was a mean question to ask a man with a cigar in his mouth and who had just had a drink of whisky—thereby admitting that he could not give an unbiased answer to such a question.

Is it not just possible that some of the physicians who are so fearful that they are to be deprived of their personal liberties by the Volstead act and its amendments are too much like the Irishman who never permitted a glass of liquor to pass his lips, it always went between? Are they not speaking one word for their patients and two for themselves?

The writer, who does not know the taste of any kind of alcoholic and who after thirty-eight years of active practice finds it no hardship not to be permitted to prescribe them, should perhaps plead guilty of belonging to the other extreme, who believe that the sooner alcoholics are abolished as a beverage or even as a medicine, the better.

Where one has been helped by it as a medicine, if ever, thousands have been harmed by it as a beverage, and thousands more of innocents have suffered untold hardships and sorrows because of it.

Here in South Dakota, a state with sixty-six counties, some of them as big as some of the New England states, fifty-three of the counties have not a single physician with a license to prescribe alcoholics.

With us it requires both a federal and state license.

ARTHUR H. TUFTS, M.D., Sioux Falls, S. D.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TEST FOR DETERMINING COAGULATION TIME OF BLOOD

To the Editor:—Can you tell me whether the following test for the coagulation time of the blood is reliable and satisfactory? The end of a capillary tube, 2 or 3 inches long, is touched to a fresh drop of blood on the ear and the blood is drawn down into the tube; then after about three minutes, small pieces of the tube are broken off. This is done at frequent intervals until threading is observed. Is it necessary to wash the capillary tubes before using in this way, or can they be used dry just after you buy them?

F. B. BOGARDUS, M.D., Kalispell, Mont.

ANSWER.—The test for determining the coagulation time of the blood as given above is a slight modification of that proposed by George R. Love and published in the *Medical Record* (98:436 [Sept. 11] 1920). Love specifies that the capillary tubes shall be from 0.3 to 0.5 mm. in diameter and, instead of collecting the blood directly into the tubes from a puncture of the ear, he draws the blood by puncture of the median basilic vein and places it at once in small test tubes, the walls of which have been paraffined. From these tubes the blood is drawn into the capillary tubes at periods which must not be more than two minutes from the time the blood is collected. The modification suggested by Dr. Bogardus would seem to be one that should yield reliable and satisfactory results, provided the blood is flowing freely from the puncture of the ear. There should not be any delay in the filling of the capillary tubes, and the time of filling each tube should be accurately noted. A further point that would seem to be of importance is that the temperature at which the tubes are kept after being filled should approximate from 20 to 25 C. Concerning the question of using the capillary tubes just after they are bought, without washing, it should be said that these tubes must be kept scrupulously clean and dry, and that they are not in this condition as they come from the shops. The tubes should be cleaned with water, alcohol and ether, and allowed to dry before being used.

EXTERNAL PELVIMETRY—DIFFERENCE IN MEASUREMENT OF THE TRUE CONJUGATE AND EXTERNAL CONJUGATE

To the Editor:—1. Can you refer me to any article on external pelvimetry of the female computed with reference to height, weight and build? Most books on obstetrics do not take these into account. 2. What is the usual difference in the true conjugate as compared with the external conjugate computed in inches or centimeters? Please omit my name. A. C. D.

ANSWER.—1.

Pierce, G. H.: Outlet Pelvimetry, *Med. Rec.* **98**:723 (Oct. 30) 1920.

Grunkraut and Haret: Pelvimetry with Roentgenoscopy, *Presse méd.* **28**:756 (Oct. 23) 1920.

Haret, G.: Radiopelvimetry, *J. de radiol. et d'electrol.*, September, 1920.

Acosta-Sison, H., and Calderon, F.: Pelvimetry and Cephalometry Among Filipino Women and New-Born Babies, Based on 1,237 Cases, *Philippine J. Sc.* **14**:253 (March) 1919.

Bourne, A. W.: Pelvimetry in Antenatal Clinics, *Brit. M. J.* **1**:70 (Jan. 18) 1919.

MacKenzie, W. R.: Roentgenographic Pelvimetry, *Brit. M. J.* **1**:612 (June 1) 1918.

Huntington, J. L.: True Value of Certain Pelvic Measurements, *Am. J. Obst.* **76**:277 (Aug.) 1917.

Van Allen, H. W.: Roentgen Ray in Pelvimetry, *Am. J. Roentgenol.* **3**:367 (July) 1916.

Cummings, H. H.: External Pelvimetry with Special Reference to Method of Measuring Outlet, *J. Michigan M. Soc.*, December, 1911; abstr. THE JOURNAL, Oct. 28, 1911, p. 1484.

2. The true conjugate, or conjugata vera, is the distance from the top of the pubes to the tip of the sacral promontory. In the normal pelvis it measures 11 cm. The external conjugate or Baudelocque's diameter, is the distance from the anterior surface of the pubes to the depression under the last lumbar spine and measures 20 cm.

EFFECT OF DRINKING WATER WITH MEALS—CONTROL OF PYLORIC SPHINCTER

To the Editor:—Please give me the latest opinion, based on experimental evidence, concerning the following: 1. Does the ingestion of water during meals dilute the gastric juice? 2. Does the action of the pyloric valve depend on sympathetic nerve impulses or on the chemical reaction of the gastric or duodenal contents? References to the literature bearing on these subjects would be appreciated. Please omit name. F. E. M., New York.

ANSWER.—1. The immediate effect of water during a meal is certainly one of dilution. However, this fact has been overemphasized by those who are adverse to the drinking of water with meals, for it has been shown indubitably by several investigators, working on dog and man, that water itself promotes a secretion of gastric juice and that when water is given shortly before or with a meal it has a very definite effect in increasing the secretory response of the stomach as regards volume of juice and acidity. A given amount of water has "less and less effect on gastric secretion the longer the time interval between the meal and the giving of water" (Sutherland). Ivy has likewise found that the ingestion of water with the meal increases the amount and the free and total acidity of the gastric juice. Incidentally, the ingestion of water with meals decreases the emptying time of the stomach.

For a detailed account of the experiments and bibliography on the subject see:

Ivy, A. C.: Studies in Water Drinking, *Am. J. Physiol.* **46**:420 (July) 1918.

Sutherland, G. F.: On the Secretory Response of the Gastric Mucous Membrane to Water and Saline Solutions, *Am. J. Physiol.* **55**:258 (March) 1921.

2. Regarding the control of the pyloric sphincter, its activity is not dependent on impulses which reach it either by way of the sympathetic nerves (splanchnics) or by way of the vagi. To be sure, the vagi and the splanchnics may and do normally regulate its activity, since these nerves convey essentially motor and inhibitory impulses, respectively, to the stomach, including the pyloric sphincter. However, the stomach performs its motor and secretory functions quite

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normally after all its extrinsic nerves have been sectioned.

According to Cannon, the pyloric sphincter relaxes under the influence of the free acidity of the gastric juice, and contracts under influence of free acid in the duodenum (acid chyme). This theory, supported by a wealth of experimental evidence (obtained chiefly from cats), has been questioned latterly by clinicians and laboratory workers alike. The theory failed to explain, for example, the rapid exit of water and neutral egg white solutions from the stomach at a time when the free acidity of the gastric juice had not risen sufficiently to open the pylorus or to close the pyloric sphincter after reaching the duodenum. The theory failed, furthermore, to explain the normal or accelerated rate of the emptying of the stomach in achylia gastrica. Morse even reported a diminution in the discharge of the stomach with an increase in the acidity of the gastric contents. Luckhardt, Phillips and Carlson by experiments with man and dog found a greater relation between the muscular activity of the stomach (tone and peristaltic waves) and the opening of the pylorus than between the latter and the reaction of the intragastric contents. Cole, in man, found that the stomach begins to empty itself before the ingestion of a full meal is complete, which indicates a greater relation between the motor activity of the organ and the intragastric reaction. These findings in man have been corroborated and extended by McClure, Reynolds and Schwartz, who found that the normal human stomach begins to empty itself within a few minutes after the ingestion of a meal (of proteins, fats or carbohydrates). These investigators also relate the opening of the sphincter with the approach of each antral peristaltic wave. Lately, Wheelon and Thomas showed, in dogs, that the opening of the pyloric sphincter is "dependent, in part at least, on gastric motility." They promise further observations showing that the "rhythmic contractions of the sphincter bear a definite and constant relation to the motility of the stomach."

The following articles present data (and bibliography) in support of the short discussion given above:

Cannon, W. B.: The Acid Control of the Pylorus, *Am. J. Physiol.* **20**: 283, 1907.

Morse, W. E.: The Relation of Acid to Gastric Discharge and Duodenal Regurgitation in the Dog, *Am. J. Physiol.* **41**: 439 (Oct.) 1916.

Luckhardt, A. B.; Phillips, H. T., and Carlson, A. J.: The Control of the Pylorus, *Am. J. Physiol.* **50**: 57 (Oct.) 1919.

Cole, L. G.: Physiology of the Pylorus, Pilleus Ventriculi and Duodenum as Observed Roentgenographically, THE JOURNAL, Sept. 6, 1913, p. 762; *Am. J. Physiol.* **43**: 618, 1916.

McClure, C. W.; Reynolds, L., and Schwartz, C. O.: On the Behavior of the Pyloric Sphincter in Normal Man, *Arch. Int. Med.* **26**: 410 (Oct.) 1920.

Wheelon, H., and Thomas, J. E.: Rhythmicity of the Pyloric Sphincter, *Am. J. Physiol.* **54**: 460, 1921.

DELAYED SPEECH DEVELOPMENT IN CHILDREN

To the Editor:—Will you discuss reasons for delayed speech development in children? A country practitioner has applied to me for information concerning his own child, the truth in the family who, he says is in good health and otherwise shows no defect in physical development, but who now at 3 years of age says only a few words and those indistinctly. He makes signs for what he wants, and when understood or misunderstood says "Yes" or "No." He says "Papa" clearly, but "Mama" only with an effort. He plays freely with other children, but even then makes his wishes known by signs. He hears well and has no tongue tie. The physician says he knows of other similar cases. Naturally he is concerned as to the outcome to be expected.

HENRY W. IRWIN, M.D., Natchitoches, La.

ANSWER.—The causes of delayed development of speech in children may be thus classified:

1. Deafness, complete or partial.
2. Feeblemindedness, severe or moderate.
3. Mental retardation, less than feeblemindedness, but of congenital origin.
4. Injury to the speech centers or tracts, either through traumatism (for example, at birth), or disease. In these cases the children are likely to show paralysis, and they may be feebleminded.
5. Impaired mental physiology, usually due to the effects of prolonged ill health, marked adenoids, etc.
6. Disturbed psychology in an otherwise normal child. This class is rather large, and in the individual case, the cause is often obscure. Environmental conditions, diet, etc., should be studied, in the light of the peculiarities of the child. For example, it sometimes happens that too ready acquiescence in the tendency of a particular child to gesture rather than to talk may confirm such a tendency and thus actually discourage the inception of talking.
7. Peripheral abnormalities. Tongue tie is an example. But, in the child of alert mentality, speech is likely to start and progress much as usual, excepting for the lack of articulative normality resulting from the deformity.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 6. Sec., Dr. Harry C. De Vighne, Juneau.
IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.
ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.
ILLINOIS: 217 County Bldg., Chicago, Aug. 30-31. Director, Mr. W. H. H. Miller, Capitol Bldg., Springfield.
MASSACHUSETTS: Boston, Sept. 13-15. Sec., Dr. Walter P. Bowers, 144 State House, Boston.
MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.
MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEW HAMPSHIRE: Concord, Sept. 9-10. Sec., Dr. Charles Duncan Concord.
PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.
RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.
WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

ILLINOIS PRACTICE ACT OF 1917 DECLARED VOID

The decision of the Illinois Supreme Court in *Love* v. *People* is one of the most important decisions on the state regulation of the practice of medicine that has been rendered for many years. The case came before the supreme court directly on a writ of error from the lower court. The evidence shows that Love, the defendant in the original case and the plaintiff in error on the appeal, was graduated from the Palmer School of Chiropractic located in Des Moines, that he took a two year course in this institution, and that no chiropractic school in this country gives a four year course. He made application to the Department of Education and Registration for a license and was informed that the Illinois Medical Practice Act of 1917 required a four year course of instruction for a license to practice any system or method of treating human ailments without the use of drugs; also that a regulation of the department required that his application be accompanied by letters of recommendation regarding his moral and professional character from at least two reputable medical men or osteopaths living in Illinois.

On being advised by his attorney that these requirements were unfair, discriminatory and unconstitutional, he began practicing and treated a number of patients according to the methods of chiropractic. For this he was indicted, convicted and sentenced to pay a fine of $50 and costs in the Vermilion County court. The indictment charged him with treating human ailments without the use of drugs or medicine and without operative surgery and without a license.

On account of the constitutional point involved, the writ of error was taken direct to the supreme court. There was no question of the violation of the medical practice act. The defense was that Section 5 of the act, which fixes the minimum standard of professional education required to practice medicine and surgery in all its branches and for treating human ailments without the use of drugs or medicine or operative surgery is invalid because it is unreasonable, discriminatory, violative of Section 1, Article 2 of the Illinois constitution, and of the due process clause of the fourteenth amendment of the federal constitution.

Section 5 of the medical practice act provides the minimum standard of professional education as follows: The applicant for a license to practice medicine and surgery in all its branches must be *"a graduate of a medical school deemed to be reputable and in good standing at the time of graduation."* The applicant for a license to practice "any system or method of treating human ailments without the use of drugs or medicine and without operative surgery" *must be a graduate of a professional school requiring a "four years' course of instruction" for graduation.*

After reviewing the history and claims of chiropractic, the court says, "It is not the province of the courts to extol or belittle chiropractic, osteopathy, or medicine and surgery. . . . The statute now in question recognized such science (chiropractic) as a useful and recognized method of treating

human ailments and prescribes what are deemed the necessary professional and educational qualifications to practice such methods of healing. We must, therefore, in this consideration treat chiropractic . . . as a profession or business that may be regulated by provisions prescribing reasonable requirements of those who apply to practice that profession, without unlawful or unjust discrimination."

The court then reviewed the power of the state to restrict and regulate various pursuits and occupations and to impose restrictions on such pursuits and showed that the power of the legislature must be exercised in conformity with constitutional requirements and that such restrictions must operate equally on all persons pursuing the same business or profession under the same circumstances. Where an act does not impose on all persons of like age, sex and condition the same restrictions in their business or profession, it is the duty of the court to declare the act void. The court then refers to the decision of the supreme court of Ohio in the *State* v. *Gravett* (55 L. R. A. 791) in which the law was declared void which required osteopaths to hold a diploma from a college which required a four year course and did not require such time and study from those applying for an unlimited license to practice medicine and surgery. The court then says, "For like reasons we must hold that Section 5 of the statute now in question (the Illinois medical practice act of 1917) is void because it unlawfully and unjustly discriminates against one class of physicians, or those desiring to become physicians, by requiring that before they can practice treating human ailments without the use of drugs, medicine, or operative surgery, they must be graduates of a professional school, college or institution teaching that system which requires as a prerequisite for graduation a 'four years' course of instruction,' while for one who desires to practice medicine and surgery in all their branches the only professional education required is that prior to July 1, 1922, he be 'a graduate of a medical college deemed to be reputable and in good standing at the time of his graduation, and has completed a course of study in such college' in accordance with the law and the rules of the state board of health established and in force at the time of his graduation. . . . *We are not prepared to hold that requiring four years' professional education before a chiropractor or osteopath is allowed to practice his profession is unreasonable or unjust.* Such a question is a question for the legislature, and the legislature is presumed to have investigated the question for itself in ascertaining what is best for the good of the profession and for the people among whom such profession is practiced; but the legislature cannot discriminate against chiropractors or osteopaths as to the time of professional education required, where no reason can be perceived for such discrimination. The act itself discloses clearly that there is an unjust discrimination against chiropractors and osteopaths. . . . Surely there is no reason for providing that the limited professional education of one class of physicians shall be greater or for a longer time than that for those practicing medicine and surgery in all their branches."

This decision, which nullifies the Illinois Medical Practice Act of 1917, clearly demonstrates two facts: First, that the only interest of the state or of the courts in the regulation of the practice of medicine arises from their interest in it as a business. It is not the function of the legislature or the court to decide scientific questions. The relative merits of different systems of treatment cannot be determined by legislative vote or court decision. The sole interest of the state in such laws lies in its interest in the regulation of the practice of medicine as a business; consequently, all discussions of medical practice acts or state examining boards as a means for elevating the standard of the practice of medicine are beside the point. Second, in any laws regulating or licensing those who treat the sick, the qualifications and conditions for license must be the same, or at least must not be greater for those asking for a limited license than it is for those asking for an unlimited license. In the majority of cases it is far better to provide that the state board or department of registration shall establish such regulations and qualifications as it may deem advisable, instead of specifying these qualifications in the law. If the regulations are unfair they can be criticized and condemned by the court without jeopardizing the entire practice act. The court also held that the regulations of the state board requiring chiropractors to submit letters of endorsement from two physicians or osteopaths was unjust and unreasonable.

In the opinion of the attorney general, this decision makes invalid the Illinois Medical Practice Act of 1917, and restores the act of 1899 which it repealed. The Department of Education and Registration is proceeding under the act of 1899 until further legislation is adopted.

Kansas February Examination

Dr. Henry A. Dykes, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 8, 1921. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Twenty candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University		(1920)	79.3
University of Kansas		(1921)	84.2
St. Louis University School of Medicine		(1920)	84.6
Washington University		(1920)	79

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University		(1919)	Missouri
National Medical College		(1888)	Missouri
Chicago College of Medicine and Surgery		(1912)	Illinois
Chicago Hospital College of Medicine		(1917)	Illinois
Northwestern University		(1920)	Illinois
Rush Medical College		(1916)	Illinois
University of Illinois		(1917)	Missouri
Drake University College of Medicine		(1897)	Missouri
Hospital College of Medicine, Louisville		(1907)	Kentucky
Johns Hopkins University		(1915)	Maryland
Tufts College Medical School		(1901)	Mass.
National Univ. of Arts and Sciences Med. Dept.		(1917)	Missouri
Marion-Sims College of Medicine		(1897)	Iowa
St. Louis University School of Medicine		(1916)	Missouri
University of Michigan Medical School		(1906)	Michigan
University of Cincinnati		(1912)	Ohio
University of Oklahoma		(1917)	Oklahoma
University of Tennessee		(1914)	Tennessee
Vanderbilt University		(1910)	Missouri
Milwaukee Medical College		(1906)	Wisconsin

Utah April Examination

Dr. C. L. Olsen, corresponding secretary, Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, April 8, 1921. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Two candidates, including one osteopath, took the physician's and surgeon's examination, both of whom passed. Three candidates were licensed by reciprocity. Two candidates were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Western Reserve University		(1920)	83.7
Osteopath			85.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland		(1916)	Colorado

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Hahnemann Medical College and Hosp. of Chicago		(1891)	U. S. Army
University of Pennsylvania		(1918)	Nat'l Bd. Med. Ex.

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held at Burlington, June 28-30, 1921. The examination covered 12 subjects and included 180 questions. An average of 75 per cent. was required to pass. Thirty-one candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Vermont	(1901) 86.6, (1919),* (1920) 88.9, 90.2, 91.6, (1921) 85.7, 86.6, 86.8, 87.1, 87.4, 87.7, 87.8, 88.1, 88.1, 88.1, 88.5, 88.8, 88.8, 89.1, 90, 90.1, 90.2, 90.3, 90.5, 90.6, 91.1, 91.1, 91.2, 92.8		
University of Montreal		(1906)	85.7
University of Naples		(1919)†	84.5

* No grade given.
† Graduation not verified.

Book Notices

TUBERKULOSE: IHRE VERSCHIEDENEN ERSCHEINUNGSFORMEN UND STADIEN SOWIE IHRE BEKÄMPFUNG. Von Dr. G. Liebermeister, Leitender Arzt der Inneren Abteilung des Städtischen Krankenhauses Düren. Paper. Price, 96 marks. Pp. 456, with 16 illustrations. Berlin: Julius Springer, 1921.

Liebermeister's theme is that tuberculosis is to be viewed as a generalized and not as a local disease. Even in cases in which the process is overwhelmingly manifested in one organ, as the lung, meninges or bone, there will be found elsewhere, much oftener than is commonly believed, foci that prove the previous presence of the specific bacilli in the blood. These foci are not always macroscopically or even histologically the classical tubercle; there is, in addition to the tubercle, an acute exudative form as well as a chronic fibrous form. The tuberculous nature of the latter form is often overlooked as it is seen in myocardium, blood vessel, liver, kidney, etc. That these three types are tuberculous, Liebermeister concludes from the histologic structure, the finding in the blood during life or in the tissues after death of acid-fast bacilli especially by his acetic acid-antiformin method, by animal inoculation or by symptoms and signs, and particularly by the tuberculin reaction during life. Like others he sees three stages of tuberculosis, and emphasizes the importance of their study and treatment, especially of the second stage with its bizarre manifestations of anemia, asthenia, bronchitis, emaciation, etc. He is an ardent advocate of the specific tuberculin therapy, though he admits the value of supporting nonspecific treatment. There are brief histories of cases, together with numerous tables, all the result of a ten years' careful clinical and necropsy study of this disease. One may not always feel that the proof is convincing as to the tuberculous nature of some of his cases, or as to the connection between the treatment and the cure. The finding in the blood of one or two acid-fast, short rods after a tedious and complicated procedure does not always satisfy as a clinical diagnosis of tuberculosis. Nor does a symptomatic improvement after the use of tuberculin in a doubtful case prove to us the value of this form of treatment. But we pardon what seems to be overenthusiasm or unwarrented optimism; for a book which is the result of long and seemingly careful bedside, laboratory and mortuary investigation, and which enables us to see one of the commonest of our infectious diseases in a new and clearer light, is well worth while. The book would be improved by condensation as well as by a fuller index.

PRACTICAL CHEMICAL ANALYSIS OF BLOOD. A Book Designed as a Brief Survey of This Subject for Physicians and Laboratory Workers. By Victor Carl Myers, M.A., Ph.D., Professor of Pathological Chemistry in the New York Post-Graduate Medical School and Hospital. Cloth. Price, $3. Pp. 121, with 13 illustrations. St. Louis: C. V. Mosby Company, 1921.

This book is designed as a brief survey of the subject for physicians and laboratory workers, and is reprinted largely from articles which have appeared during the past year in the *Journal of Laboratory and Clinical Medicine* under the title of "Chemical Changes in the Blood in Disease." As the preface states: "The object has been to present briefly a discussion of the chemical blood determinations which have been found of definite value in the diagnosis and treatment of disease. In the laboratory part of the book a single method for each determination has been included, partly for the sake of brevity, and partly because the methods described are especially suited to the scheme of blood analysis which we employ." The subjects are discussed under the headings of nonprotein and urea nitrogen, uric acid, creatinin, blood sugar, carbon dioxid combining power, cholesterol and chlorids. The discussion of the methods is clear and concise, the various technical manipulations being fully detailed. While some workers might prefer other methods for the various determinations, such, for instance, as those originated by Folin and Wu, yet those discussed by Myers yield accurate and reliable results and may be depended on. Under each separate topic the author has given a full discussion of the findings in the various conditions to which these examinations are applicable, and has given a clear interpretation of the results to be obtained by following these methods. In an appendix the author has presented a number of practical questions which may arise in connection with the chemical analysis of blood for diagnostic purposes, and has offered literature references to other blood determinations, which have, at present, less practical value. Here, also, are discussed a few quantitative methods of urine analysis in connection with the blood analyses, an alphabetical list of the standard solutions and reagents employed in the various tests forming a very convenient source of reference. This little book is recommended to all those who have occasion to employ such tests, either in their own routine work or in performing them for others.

THE FUNDAMENTALS OF BACTERIOLOGY. By Charles Bradfield Morrey, B.A., M.D., Professor of Bacteriology, Ohio State University, Columbus, Ohio. Second edition. Cloth. Price, $3.25. Pp. 320, with 177 illustrations. Philadelphia: Lea & Febiger, 1921.

This is a textbook designed for a half year's work in the fundamental technic of bacteriology. A detailed description of the contents seems unnecessary, particularly since the author makes no claims as to originality. The last section of the book is devoted to a general discussion of the life and activities of pathogenic bacteria. The reader is struck by the number of technical terms encountered throughout the book. These are in most cases accurately defined, although the synonomous use of "complement-fixation" and "complement-deviation" is to be regretted. It is also difficult to understand how a student can comprehend the principles of immunity with no knowledge of disease processes or their causes. There are however, various features to be commended, the most important of which is the simplicity of language, a point too frequently overlooked in elementary textbooks. The value of a purely technical course in bacteriology for college students is doubtful. It would seem far better to teach technic in connection with a general study of the structure and activities of bacteria and their relationships, and thus to relegate technical processes to their proper position —one of usefulness as a means to an end.

THE HOPE OF OUR CHILDREN. A Treatise on Tuberculosis in Juveniles. By Hans Much, Director of the Institute for the Research of Tuberculosis at the University of Hamburg. Translated by Dr. Max Rothschild, Medical Director of the California Sanatorium for the Treatment of Tuberculosis, Belmont, California. Paper. Price, 60 cents. Pp. 22. San Francisco: The Courier Company, 1921.

This little brochure is a plea for early active and preventive treatment of tuberculosis in children. The discussion is largely popular, the appeal being especially directed to parents, family physicians and school officials. The subject is well presented and in scientific manner. The statement that if children pass through tuberculosis they "acquire a lasting protection against tuberculosis" is misleading, at least to the layman, who may fail to grasp the fact, recognized by the author a little further on, that this protection may later be broken down with the redevelopment of tuberculosis. Also, to say that "in its incipiency every tuberculosis is curable," the cure being largely by the use of roentgen rays, may arouse more hope than is justified in the light of practical experience. Should we not in speaking to the laity keep well within the bounds of demonstrated fact?

THE MANNER OF MAN THAT KILLS. Spencer — Czolgosz — Richeson. By L. Vernon Briggs, M.D., Director of the Massachusetts Society for Mental Hygiene. Cloth. Price, $5. Pp. 444, with illustrations. Boston: Richard G. Badger, 1921.

Dr. Briggs presents in this work his study of the life histories of three notorious criminals—Spencer, Czolgosz and Richardson. All three suffered capital punishment for the crimes they committed since, in the testimony of various experts, they were considered sane. It is Dr. Briggs' belief that they were not sane, and his book is written with a view to proving his belief. The plea is that it is the duty of society to provide suitable environment and protection and early medical treatment rather than to punish the defective as a criminal after he has committed the crime. Dr. Briggs makes a strong case in each instance. It must be remembered, however, that the book is not so much a medical work as a sociopsychologic treatise.

Medicolegal

Physicians Not Liable for Typhoid Fever

(Davis et al. v. Rodman et al. (Ark.), 227 S. W. R. 612)

The Supreme Court of Arkansas, in affirming a judgment in favor of the defendant physicians, says that the plaintiffs were man and wife who had a family of six minor children and two adult married sons. The adult sons lived in their own homes. One of them was taken with typhoid fever, and the other nursed him and subsequently had the fever. The plaintiffs and three of their minor children were also stricken with the fever, owing, it was alleged, to the negligence of the defendants, for which a recovery of damages was sought.

There was an allegation that the defendants "failed to have buried or disinfected the secretions and excretions from the bodies of the patients." But there is no duty imposed on physicians by statute personally to bury or disinfect the secretions or excretions of their typhoid fever patients. The state board of health requires that "no person in charge of a typhoid fever patient shall so dispose of the excreta or other infectious bodily secretion or excretion as to cause offense or danger to any person or persons." If it be conceded that this makes it the duty of physicians to instruct those in immediate charge of a patient to dispose of the excretions and secretions in the foregoing manner, still there were no allegations of fact in this case showing that the failure to discharge that duty was the proximate cause of the communication of the disease.

It is undoubtedly the duty of physicians who are attending patients afflicted with contagious or infectious diseases not negligently to do any act that will tend to spread the infections. It is likewise their duty to exercise reasonable care to advise members of the family and others who are liable to be exposed to it of the nature of the disease and the danger of exposure. The relation of a physician to his patient and the immediate family is one of the highest trust. On account of his scientific knowledge and his peculiar relation, an attending physician is, in a certain sense, in custody of a patient afflicted with infectious or contagious disease, and he owes a duty to those who are ignorant of such disease, who by reason of family ties or otherwise are liable to be brought into contact with the patient, to instruct and advise them as to the character of the disease. It is a sound rule of law that one who by reason of his professional relation is placed in a position in which it becomes his duty to exercise ordinary care to protect others from injury or danger is liable in damages to those who are injured by reason of his failure to exercise such care.

It was therefore the duty of the defendants, when called to attend the children of the plaintiffs, to notify the plaintiffs, other nurses and attendants of the nature and character of the disease, to warn them of the danger of infection, and to instruct them as to the usual methods approved by the profession, of which they had knowledge, for the prevention and spread of the disease. This duty was incumbent on the defendants regardless of the rules and regulations of the state board of health on the subject. But it was not the duty of the defendants as physicians to enforce the rules of the state board of health for the prevention of typhoid fever. That was the duty of local health officers. Violation of the rule of the state board of health with regard to reporting communicable diseases was evidence of negligence, but was not actionable negligence creating civil liability, unless it was the proximate cause of injury to the plaintiffs, which there was no allegation of facts to show. Assuming it to be true that the defendants advised the plaintiffs to move the second adult son stricken to their home, and that they could put him among their other children, such instructions, coming from attending physicians without warning of the danger of infection to the other children, were acts of gross negligence, but specific acts and facts were not alleged showing that they caused the injury to the plaintiffs.

Nor did mere failure to "vaccinate" the plaintiffs, their children, nurses and others exposed to the disease render the defendants liable for damages. It cannot be said that the efficacy of inoculation of a specific vaccine to prevent the spread of typhoid fever has been so thoroughly established by medical science as to make it the absolute duty of physicians to inoculate nurses, attendants and persons exposed during an epidemic of that disease. It must be left to the judgment and discretion of the physician under the circumstances of each particular case to determine whether or not inoculation is necessary.

Proper Charge to Jury in Malpractice Case

(Horn v. Pope (Ala.), 87 So. R. 161)

The Supreme Court of Alabama, in affirming a judgment in favor of the plaintiff for damages for alleged malpractice by the defendant, does not state the amount of the judgment or the evidence on which it was recovered. The plaintiff stated his claim in various forms in different counts, and the court holds that each count of the complaint sufficiently conformed to rules of pleading in cases of this character as heretofore established and approved by this court, so that neither of them was subject to the defendant's demurrer. It also holds that there was no error in giving the plaintiff's requested charge, which to an extent explains the case, and was as follows:

If the jury believe from the evidence that the plaintiff broke his leg, and that the defendant was employed by the plaintiff's father (plaintiff being a minor) to treat and attend the same as a physician and surgeon, and he entered upon and undertook such employment, and did set or dress or treat the plaintiff's said leg as a physician or surgeon, and assumed charge of the same, then the plaintiff was entitled to receive from the defendant the care, attention and skill of an ordinarily skilled physician and surgeon. And if you believe that the plaintiff did not receive from the defendant such care, attention and skill, and that in consequence of not receiving the same and without fault on the plaintiff's part, or on the part of any one else, suffered increased pain, suffering and injury, then the jury are instructed that the defendant is liable and the jury will render a verdict for the plaintiff, and assess his damages found from the evidence, not to exceed the amount claimed in the complaint.

Irritation of Tumor Necessitating an Operation

(Louisville Ry. Co. v. Koob (Ky.), 227 S. W. R. 291)

The Court of Appeals of Kentucky affirms a judgment in favor of plaintiff Koob for $3,800 damages for personal injuries, which included the bruising of her breast, irritating a tumor so that a physician decided that it was best to remove it from her breast, as he was afraid it might result in cancer. The court says that about five years before the physician had noticed the tumor and had recommended that it be taken out then, as it might become malignant. However, there was no danger of its becoming malignant, if not irritated. When the bruised gland was removed, it showed irritation. It was argued that the defendant railway company was not responsible for the operation on the plaintiff's breast, since the operation was due to a tumor which should have been removed several years before. But the evidence showed that the tumor was not malignant, and if the breast had not been bruised and irritated, it might never have been necessary to remove the tumor. Hence it could not be said that the defendant was in no wise responsible for the operation, for the accident caused the bruised condition which made the operation necessary.

Society Proceedings

Amer. Assn. of Obst., Gynec. and Abdom. Surgs., St. Louis, Sept. 20-22.
American Electro-Therapeutic Association, Washington, D. C., Sept. 7-10.
American Roentgen Ray Society, Washington, D. C., Sept. 27-30.
Colorado State Medical Society, Pueblo, Sept. 6-8.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Indiana State Medical Association, Indianapolis, Sept. 28-30.
Kentucky State Medical Association, Louisville, Sept. 27-29.
Minnesota State Medical Association, Duluth, Aug. 24-26.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
National Medical Association, Louisville, Ky., Aug. 23-26.
New England Surgical Society, Worcester, Mass., Sept. 21-22.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Utah State Medical Association, Salt Lake City, Sept. 13-14.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Washington State Medical Association, Seattle, Sept. 2-3.
Wisconsin, State Medical Society of, Milwaukee, Sept. 7-9.
Wyoming State Medical Society, Casper, Sept. 6-8.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

April, 1921, **161**, No. 4

Pellagra. W. J. MacNeal, New York.—p. 469.
*Absence of Pancreatic Secretion in Sprue and Employment of Pancreatic Extract in Treatment. T. R. Brown, Baltimore.—p. 501.
*Epinephrin Hypersensitiveness and Its Relation to Hyperthyroidism. F. W. Peabody, C. C. Sturgis, E. M. Tompkins and J. T. Wearn, Boston.—p. 508.
*Diet in Treatment of Chronic Arthritis. R. Pemberton, Philadelphia.—p. 517.
*Pathology of Bronchial Asthma. Nai Kamchorn and E. G. Ellis, Bangkok, Siam.—p. 525.
Influenza. C. Frothingham, Boston.—p. 528.
*Acute Nitrobenzol Poisoning: Studies on Blood in Two Cases. R. F. Loeb, A. V. Bock and R. Fitz, Boston.—p. 539.
New Intestinal Tube; Its Use in Case of Ulcerative Colitis. M. Einhorn, New York.—p. 546.
*Nocturnal Polyuria. J. H. Barach, Pittsburgh.—p. 551.
*White Adrenal Line (Sergent); Its Clinical Significance. W. E. Kay, San Francisco, and S. Brock, New York.—p. 555.
*Cholesterol in Cerebrospinal Fluid. A. Levinson, L. L. Landenberger and K. M. Howell, Chicago.—p. 561.
Pulse-Rate and Blood-Pressure Responses of Men to Passive Postural Changes. M. M. Ellis, Long Island, N. Y.—p. 568.
*Laboratory Aids in Diagnosis of Gonococcal Infections, with Special Reference to Gonococcus Complement-Fixation Test. R. A. Kilduffe, Pittsburgh.—p. 578.
Pathology and Treatment of Fractures of Spongy Bones. P. W. Nathan, New York.—p. 585.

Absence of Pancreatic Secretions in Sprue.—Brown is convinced from a study of cases that in certain at least of the chronic cases of sprue (1) there is practically complete absence of the pancreatic ferments, and (2) that while, obviously, all the well-recognized forms of treatment, dietetic, hygienic, etc., should be rigorously carried out, nevertheless, very great improvement and, in some cases, apparently clinical cure can be brought about by regular and constant administration of pancreatin.

Epinephrin Hypersensitiveness and Hyperthyroidism.—Summarizing the observations made on various groups of subjects without evidence of organic disease, Peabody et al. state that hypersensitiveness to epinephrin is certainly not characteristic of the hardened soldier; that it occurs in about 14 per cent. of average young men, such as medical students; that it is present in nearly 50 per cent. of the type of young men who broke down under military training with the picture of "effort syndrome" and that it is still more common among definite psychoneurotics. It is difficult not to see some relation between epinephrin hypersensitiveness and what one may call a "nervous constitution." Different individuals, both sick and well, react with different degrees of intensity to the injection of epinephrin. The fundamental nature of the reaction is unknown. Hypersensitiveness to epinephrin is found in many patients with the clinical picture of hyperthyroidism and with an increased basal metabolism, but it is not constant under these conditions. The "positive" reaction to epinephrin appears to occur most often in highly nervous individuals, but it is not constant in such persons. The clinical significance of the reaction is not clear, but at present it should certainly not be regarded as having any specific significance in the diagnosis of hyperthyroidism.

Diet in Treatment of Arthritis.—While no rule can be advanced for determining the level of the appropriate diet in any given case of arthritis, Pemberton says the nearest approach to such a help is based on the recognized approximate requirement of 30 calories per kg. of body weight under resting conditions. If reasonable precautions be observed this is probably a safe nutritive level under most circumstances, and if the total calories so determined be contrasted with the calories level under the previous conditions of the individual's life the observer will often be surprised at the sharp reduction evidenced. It must not be supposed, however, that this will necessarily achieve the desired result in all cases. It is probably fair to say, that this level should be established in many refractory cases as a foundation for other forms of therapy that might otherwise be inoperative. Attention is called to the principle of giving the individual as much satisfaction as possible at his meals by serving bulky substances of small nutritive worth. It is thus possible to provide what appears to be a fairly generous meal, although the amount of actually nutritious substances, such as eggs, bread, butter, milk, etc., which form the source of the calories in the diet may be very limited.

Pathology of Bronchial Asthma.—A twelfth case of fatal bronchial asthma was studied by Kamchorn and Ellis. Clinically, it is of interest because of the family history of asthma in four generations. Furthermore, the duration of the disease, with attacks from childhood to the age of 52 years, would supposedly lead to permanent histologic changes in the bronchi if such ever occur in this affection, yet no greater changes were present in the walls of his bronchi than might develop in a few days during an acute inflammation without asthma. Therefore, the histology of the bronchi does not explain the course of bronchial asthma. The length of time a person suffers from the disease and the number of attacks he has are apparently without effect on the bronchi. The theory of spasm of the bronchial muscles, while not thus proved, is by each case increasingly favored.

Acute Nitrobenzol Poisoning.—Two young men bought six bottles of Jamaica ginger from a stranger. Both agreed that this ginger did not taste like ordinary ginger but was drinkable, so that they partook freely of it. On subsequent analysis the liquid was found to contain a high percentage of nitrobenzol. In about three hours after beginning on the first bottle one man began to have generalized headache, nausea and blurring of vision. He thought that he fell on the sidewalk and remembered nothing further until he woke up in the hospital. The other man, at about the same time, began to feel dizzy and nauseated. He did not lose consciousness but came to the hospital with his friend. At entry both men were of a steel gray-blue color, the unconscious man looking particularly dead while his companion was of a ghastly color but in reasonably good shape. There was nothing else especially notable except that neither man excreted any urine for at least hours after entry into the hospital. The stomachs of both men were washed out at once. The sicker man was bled 100 c.c. of blood and transfused with 600 c.c. of normal blood. In the middle of transfusion he suddenly woke up and appeared normal. The second man was also transfused, with less dramatic effect. Both men, however, felt perfectly well on the following day and made normal recoveries, except that the more seriously poisoned man developed a mild, uncomplicated pneumonia. The oxygen capacity of both bloods on the first observation was markedly reduced, in one case being only 6.2 volumes per cent. The total hemoglobin was not reduced. The fact that methemoglobin was not detected by spectroscopic examination suggests that a large proportion of the hemoglobin was changed to Filehne's nitrobenzol hemoglobin. This combination, in turn, was an easily destroyed compound as demonstrated by the blood analysis made twenty-four hours later. By this time the appearance of both patients was much more nearly normal and the bloods showed no diminution in their total hemoglobin, oxyhemoglobin or oxygen capacity. Leukocytosis developed in one case. The high-colored, almost black, urine excreted by these patients was probably due to para-amido-phenol.

Nocturnal Polyuria.—A survey of 100 cases of subacute and chronic nephritis was made by Barach. He found that nocturnal polyuria is a highly diagnostic symptom of an established subacute or chronic nephritis. It occurs independently of arterial hypertension. The quantitative analysis shows a complete reversal from the normal in the amount of work accomplished by the kidneys during the day and night periods. Obervations on patients having nocturnal polyuria show that it is not the result of heavy evening meals, physical exertion, arterial hypertension nor the horizontal posture. The most probable cause seems to be found in the physiologic adjustments in circulation incidental to sleep. The evidence gathered in these observations suggests that nocturnal polyuria is primarily a manifestation of increased elimination of water because of a more favorable state of the renal circulation and

that the increased elimination of salts is coincidental rather than causative.

White Adrenal Line.—From a study of 255 cases of a variety of diseases and normals, Kay and Brock feel justified in asserting that the so-called white adrenal line of Sergent is a local vasomotor reflex, resident in the skin, bearing no direct relationship to suprarenal gland activity. The reasons for postulating the above are: (*a*) Its independence of blood pressure, acute fatigue and other signs of hypo-adrenia; (*b*) its frequent occurence in normals and in a variety of diseases unassociated with hypo-adrenia; (*c*) its appearance in the face of persistent general manifestations of epinephrin subcutaneously administered; (*d*) its peculiar association with scarlet fever. It would appear that the state of the vasomotor system which allows of its best exhibition is found in young adults of either sex, and especially in the exanthem of scarlet fever. On the basis of this series it is stated that this line has not the clinical significance attributed to it.

Cholesterol in Cerebrospinal Fluid.—Levinson, Landenberger and Howell examined 168 fluids for cholesterol. Normal cerebrospinal fluid contains no cholesterol or only a very small trace of cholesterol. Fluid in which the Wassermann and Lange reactions are positive contains no cholesterol in appreciable amounts. Only three out of twenty-five such fluids gave a reading in the colorimeter. Fluid of hemorrhage of the brain showed high cholesterol content. Fluid from tumor of the brain gave a trace of cholesterol. Fluid from a case of brain abscess gave a high cholesterol reading. The majority of meningitis fluids showed a trace of cholesterol. Three fluids had a high reading. Ventricular fluid gave no cholesterol reading, except when there was the presence of hemorrhage of the brain or other pathologic condition. The Hauptmann reaction seems to depend on the cholesterol content of the cerebrospinal fluid. This work does not bear out Pighini's contention that the Wassermann reaction depends on the cholesterol of the fluid. The authors believe that the cholesterol content depends wholly or partially on the permeability of the meninges.

Gonococcus Complement Fixation Test.—A positive reaction, Kilduffe asserts, is of far greater value than a negative, which again emphasizes the necessity for the proper interpretation of laboratory procedures. Factors influencing the interpretation and reliability of the reaction are: (1) Because of the small amount of antibody produced, the reaction, when positive, is weaker than the Wassermann and may be indefinite. (2) It is frequently absent in acute, uncomplicated cases, and may not appear earlier than six weeks after the onset. (3) In acute exacerbations of a chronic urethritis the reaction is positive in about 80 per cent. of cases; in ordinary chronic urethritis with mild prostatic involvement, the reaction is positive in from 30 to 40 per cent. of cases. The occurrence of an acute complication usually gives rise to a positive reaction. A positive reaction may persist for several weeks after a clinical cure, usually lasting for two or three weeks. If obtained later than that, a focus of active infection is probably present. In women the reaction is positive, as a rule, only when the infection reaches the cervical canal. The reaction is positive in about 60 per cent. of pyosalpinx cases. In cases of gonorrheal arthritis the reaction is positive in from 80 to 100 per cent. The administration of gonococcus vaccine or antigonococcic serum may give rise to a positive reaction which may persist for six or twelve weeks. The reaction has a greater positive than negative value.

May, 1921, 161, No. 5

Symptomatology and Diagnosis of Foreign Bodies in Air and Food Passages. Based on Study of 789 Cases. C. Jackson, Philadelphia.—p. 625.

Cancer of Uterus. J. B. Deaver and S. P. Reimann, Philadelphia.—p. 661.

Multiple Sclerosis and Psychoanalysis. S. M. Jelliffe, New York.—p. 666.

Surgical Treatment of Empyema by a Closed Method. A. E. Mozingo, Indianapolis, Ind.—p. 676.

Postnatal Development and Pathologic Organ Reconstruction in Relation to Function and Disease. H. Obertel, Montreal, Canada.—p. 694.

*Transfusion of Blood. I. S. Ravdin and E. Glenn, Philadelphia.—p. 705.

Study of Polycythemia Vera with Splenomegaly; Report of Two Cases; Treatment by Roentgen Rays. E. P. Pendergrass, Philadelphia.—p. 723.

*Typical Tuberculosis with Mikulicz's Syndrome; Report of Case with Unusual Pulmonary and Subcutaneous Lesions. P. L. Marsh, Ann Arbor, Mich.—p. 731.

*Syphilis of Trachea and Bronchi; Résumé of Diagnostic Features; Three Case Reports. P. M. Stimson, New York.—p. 740.

Transfusion of Blood.—Ravdin and Glenn report on 168 blood transfusions done for various enemias. They regard transfusion as a specific in acute hemorrhage where the "limit of bleeding" has not been reached, in melena and in the hemorrhage of hemophilia. It is of definite value in primary pernicious anemia in hastening and prolonging remissions. It is indicated in cases of severe secondary anemia. After transfusion, operations on debilitated or anemic individuals may often be safely undertaken that otherwise would involve serious risk. Transfusion in shock is not as efficacious as in cases of shock associated with hemorrhage. The authors have not been able to prove the value of transfusion in acute infections, but in chronic infections they have had results justifying its use. Transfusion is of unproved value in acute leukemia. In aplastic anemia it is at the most a temporizing procedure. The difference, as far as reactions are concerned, between the citrate method and the Kimpton-Brown method is practically nil and the simplicity of the former warrants its preference.

Tuberculosis with Mikulicz Syndrome.—A case of tuberculosis is presented by Marsh in which there was a typical clinical picture of Mikulicz's syndrome associated with atypical pulmonary and cutaneous lesions. Histologic examination of a salivary gland and of a subcutaneous tumor revealed undoubted miliary tubercles. Search of the literature revealed only three other cases of the syndrome which were beyond question tuberculous, and only two other cases with skin manifestations, neither of which resembles Marsh's case.

Syphilis of Trachea and Bronchi.—In Stimson's first case, the principal symptom was a paroxysmal cough of three and a half months' duration and increasing severity, accompanied by dyspnea and cyanosis. A positive Wassermann reaction was obtained. Respiratory relief resulted from mercury and arsphenamin, but death occurred soon after from lobar pneumonia. Necropsy revealed a partial obstruction of the left bronchus due to a gummatous lymph node, stenosis of the left pulmonary artery, lobar pneumonia and syphilis. The second patient gave a history of three years of paroxysms of coughing, which for a year were occasionally severe enough to cause syncope. The clinical features were the peculiar deep barking cough, the stridor with enough dyspnea to make sleeping horizontally difficult, and asthmatic rhonchi in both lungs; also a positive Wassermann, a chronic catarrhal laryngitis and a papule in the lower part of the trachea, after the removal of which and the administration of arsobenzol there was a steady improvement in the patient's condition. The third patient gave a history of one year of attacks of "bronchitis," with a severe paroxysmal cough and much sputum, also attacks of difficult painful inspiration and expiration, a fairly constant moderate dyspnea and much loss of weight. The clinical features were marked inspiratory and expiratory dyspnea, notable contractions of the accessory muscles of inspiration, stridor, and inspiratory thrill over the larynx, trachea and left chest, and vesicular breath sounds that were louder on the left side than on the right, also a positive Wassermann, and death thirty-six hours after admission to the hospital. Necropsy was not done. The clinical diagnosis was syphilis of the right bronchus.

American Journal of Ophthalmology, Chicago

July, 1921, 4, No. 7

Restoration of Obliterated Eye Socket. J. M. Wheeler, New York.—p. 481.

Meibomian Glands in Chronic Blepharo-Conjunctivitis. S. R. Gifford, Omaha.—p. 489.

Retinitis of Cardiovascular and of Renal Diseases. W. L. Benedict, Rochester, Minn.—p. 495.

Ocular Blood Tension. P. Gaudissart, Brussels, Belgium.—p. 500.

Spasm of Central Retinal Artery. A. B. Bruner, Cleveland.—p. 503.

Some Clinical Phases of Ocular Involvement in Sinus Disease. E. S. Thomson, New York.—p. 507.

Ocular Diseases of Nasal Origin. J. A. Patterson, Colorado Springs, Colo.—p. 513.

Tubercular Infection as Cause of Delayed Healing in Operations on Eye. E. B. Miller, Philadelphia.—p. 516.

Marginal Vesicular Keratitis. H. S. Gradle, Chicago.—p. 519.

Primary Epithelioma of Cornea with Treatment. R. Duncan, Los Angeles.—p. 520.

Recording Scotometer. E. O. Marks, Brisbane, Australia.—p. 521.

Paralysis of Divergence and Absence of Externus. W. Ralston and E. L. Goar, Houston, Texas.—p. 523.

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Boston Medical and Surgical Journal

July 28, 1921, **185**, No. 4

Differential Diagnosis in Destructive Lesions of Great Trochanter. Report of Two Illustrative Cases. C. W. Peabody, Boston.—p. 107.
Present Status of Radiation Treatment of Hypertrophied Tonsils. H. A. Osgood, Boston.—p. 114.
Significant Reactions of Arterial Tension. Manifestations of Angio-Kinetic Energy Clinically Observed and Interpreted. C. J. Enebuske, Boston.—p. 118.
A Nutrition Campaign in Rochester. W. R. P. Emerson, Boston.—p. 117.

Journal of Bacteriology, Baltimore

July, 1921, **6**, No. 4

Spiral Bodies in Bacterial Cultures. L. Florence, Princeton, N. J.—p. 371.
Cause of Eyes and Characteristic Flavor in Emmental or Swiss Cheese. J. M. Sherman, Washington, D. C.—p. 379.
*New Modification and Application of Gram Stain. G. J. Hucker, Geneva, N. Y.—p. 395.
Color Standards for Colorimetric Measurement of H-Ion Concentration. L. J. Gillespie, Boston.—p. 399.
Effect of Pepton Production of Tetanus Toxin. H. L. Wilcox, New York.—p. 407.
Growth and Proteolytic Enzymes of Certain Anaerobes. K. G. Dernby and J. Blanc, Paris.—p. 419.

Modification of Gram Stain.—In making microscopic examinations of the quality of milk received at New York state cheese factories, a need arose for a stain which would have a greater differential value than methylene blue, and which would be applicable for quantitative as well as qualitative results. In developing a modification of the Gram stain which could be used in staining milk smears, the difficulty has been to secure a decolorizing solution which would allow the gram-positive organisms to retain the stain and still remove the color from the milk and the gram-negative types. A method is described by Hucker which has proved satisfactory. Gentian violet solution: Anilin oil, 3 c.c.; alcohol (absolute), 7 c.c.; water, 90 c.c.; shake; filter; gentian violet (Grübler) 2 gm. Iodin solution: Iodin, 1 gm.; potassium iodid, 2 gm.; water, 300 c.c. Decolorizing Solution: Anilin oil (2 parts) and xylene (1 part), 5 parts; alcohol (95 per cent.), 95 parts. Counter stain: Bismarck brown, 4.5 gm.; water (boiling), 50 c.c.; filter; alcohol (95 per cent.), 30 c.c.

Journal of General Physiology, Baltimore

July 20, 1921, **3**, No. 6

Role of Activity Coefficient of Hydrogen Ion in Hydrolysis of Gelatin. J. H. Northrop, New York.—p. 715.
Energy and Vision. P. L. Du Nouy, New York.—p. 743.
Rate of Growth of Domestic Fowl. S. Brody, Columbia, Mo.—p. 765.
Thermolability of Complement, in Relation to Hydrogen Ion Concentration. C. B. Coulter, Brooklyn.—p. 771.
Case of Salt Antagonism in Starfish Eggs. R. S. Lillie, Cleveland.—p. 783.
Studies in Wood Decay. II. Enzyme Action in Polyporus Volvatus Peck and Fomes Igniarius (L.) Gillet. H. Schmitz, Moscow, Idaho.—p. 795.
Studies on Regulation of Osmotic Pressure. I. Effect of Increasing Concentrations of Gelatin on Conductivity of a Sodium Chlorid Solution. W. W. Palmer, D. W. Atchley and R. F. Loeb.—p. 801.
Correlation of Propagation-Velocity of Contraction-Wave in Muscle with Electrical Conductivity of Surrounding Medium. S. E. Pond, Worcester, Mass.—p. 807.
Donnan Equilibrium and Physical Properties of Proteins. III. Viscosity. J. Loeb, New York.—p. 827.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1921, **6**, No. 10

*Pathology of Influenza as Seen in Those with Chronic Mental Disease. N. D. C. Lewis, Washington, D. C.—p. 531.
*Alkali Reserve of Blood Plasma During Acute Anaphylactic Shock. A. A. Eggstein, New York.—p. 555.
*Etiology of Scarlet Fever. Alkali-Producing Organisms in Scarlet Fever. R. W. Pryer, Detroit.—p. 561.
Wassermann Test and Its Interpretation. R. L. Kahn, Lansing, Mich.—p. 579.
*Two Stains Used in Preference to Wright's Stain in Routine Staining of Blood Smears. G. B. Grant and E. R. Wilson, Los Angeles.—p. 593.

Pathology of Influenza in Insane.—An investigation was carried out by Lewis on necropsy material obtained at the Government Hospital for the Insane, Washington, D. C. This group of cases is particularly interesting because (1) in most instances the acute infection occurred in tissues already considerably impaired by the chronic processes usually existent in psychopathic and neurologic patients; (2) special attention has been given to the histopathologic changes in the central nervous system; and (3) the ages of the individuals studied ranged from 7½ months (fetus) to 78 years, with many past middle life, and over 70 years of age. Practically all tissues of the body presented acute changes, the result of the infection; these changes were congestion, edema, degeneration, and rupture of walls of blood vessels resulting in hemorrhages and focal necroses, and alterations in the parenchymatous cells, varying in degree from simple albuminous degeneration to complete necrosis. When the organs were the seat of chronic processes having an abundance of new formation blood vessels there was a striking hemorrhagic picture produced from the rupture of these vessels and the associated tissue reactions. Mucous membranes in general exhibited one or the other of two changes: The congested vessels were plainly visible with bright capillary networks, or membranes were a diffuse beefy red color from rupture of vessels and general outpouring of red blood globules. In cases the kidneys were fairly free from chronic disease, but reacted strongly to the infection by acute parenchymatous cell alterations, marked general edema and universally by hemorrhages, which varied in number, size and location. In the cases forming Group II of original productive nephritis, the acute changes were more diffuse and destructive, particularly the hemorrhages which were often remarkable in extent. Of twenty cases clinically diagnosed dementia, six showed original organic brain disease, usually of the nature of a diffuse, or of a focal gliosis, while congestions, hemorrhages and acute softenings were prominent through all structures regardless of the presence or absence of an original lesion. In the brains from senile and arteriosclerotic patients presenting the usual vascular changes and lack of adequate nutrition, the acute process was exceptionally destructive to vessel walls, and focal areas of softening were most abundant. Among the influential and postinfluential psychoses, the acute hallucinatory disorders, depressions and dementia praecox were the most frequent. The intense meningeal and cortical edema and congestion, the acute processes in the parenchymatous cells, and the alterations in the vessel walls may account for the precipitation of many cases of acute hallucinatory disorder. In later stages of cerebral edema there has been evidence of a tendency to develop depressions, many of which are the type indicated by the term of manic-depressive insanity.

Alkali Reserve During Anaphylactic Shock.—The animals used by Eggstein were sensitized by preliminary injections of horse serum, or purified dried egg albumin. The influence of the preliminary or sensitizing doses of protein on the carbon dioxid capacity of the plasma was found negligible. The animals, after receiving the sensitizing doses of protein, were kept on a well balanced diet for an interval sufficient for sensitization, at the termination of which the shock experiments were made. Acute anaphylactic shock in dogs is associated with an immediate and progressive acidosis. The acidosis appears before the onset of recognizable clinical symptoms of shock. When the carbon-dioxid capacity of the blood plasma falls below 25 volume per cent. the animal usually dies. The acidosis is quickly relieved after shock if the animal survives. The alkali reserve of the plasma is restored to normal in less than six hours. The administration of sodium bicarbonate to dogs before anaphylactic shock has an apparent beneficial influence on the recovery of the animals. However, it will not always prevent death even though the alkaline reserve of the plasma is restored to normal or above. Alkaline treatment of guinea-pigs preliminary to acute anaphylactic shock reduced the mortality 16.7 per cent. in a series of forty-two animals treated with relatively large doses of sodium bicarbonate intravenously and a minimum lethal shock dose of the sensitizing protein.

Etiology of Scarlet Fever.—A large coccus-shaped organism which in size resembles somewhat a yeast has been isolated by Pryor from scarlet fever patients and has not as yet been found in other conditions. This organism is characterized by alkali production in all sugars, abundant spore production and typical amine odor. The spores are very resistant to heat, withstanding at least two hours' boiling but are usually killed by a temperature of 110 C. in the autoclave.

New Stains for Blood Smears.—The stains used by Grant and Wilson do not require preliminary fixation. Solution 1.—Saturated solution eosin in methyl alcohol. Solution 2.—Mallory's instantaneous hematoxylin. Smear should be even

and not too heavy. Dry in air or pass through flame. Stain with saturated solution methyl eosin, from two to two and a half minutes. Wash in distilled water. Stain with hematoxylin solution from three to four minutes. Wash in distilled water, blot and dry. This stain is entirely satisfactory for differential counts, but is unsatisfactory for staining malarial parasites. The following stains were used on all smears suspected of malaria: Solution 1. Saturated solution eosin in methyl alcohol. Solution 2. 0.25 per cent. aqueous solution azure II. Smear should be even and not too heavy. Dry in air or pass through flame. Stain with Solution 1, from two to two and a half minutes. Wash in distilled water. Stain with Solution 2, from twenty to forty seconds.

Kansas Medical Society Journal, Topeka

July, 1921, **21**, No. 7

On Diagnosis and Operative Results of Some Neurologic Conditions. E. Sachs, St. Louis.—p. 217.
Standardized Splints. R. C. Young, Arkansas City.—p. 220.
Comparative Sequelae of Contagious Disease and Focal Infection. F. W. Huddleston, Liberal.—p. 223.
Cancer of Breast—Review of Present Status of Operative Treatment. R. B. Stewart, Topeka.—p. 225.
Law for Doctor: Right of Physician to Rate Himself Relative to His Professional Standing, for Purpose of Determining Amount of His Fee. L. Childs.—p. 228.

Maine Medical Association Journal, Portland

July, 1921, **11**, No. 12

Medical Inspection of School Children. P. E. Gilbert, Ashland.—p. 365.
Report of Delegates to American Medical Association. B. W. Bryant. —p. 378.
Uses of Ultra-Violet Rays in Dermatology. R. B. Josselyn, Portland. —p. 383.

Medical Record, New York

July 30, 1921, **100**, No. 6

*The Thyroid. C. H. Mayo, Rochester, Minn.—p. 177.
Local Anesthesia and Surgical Technic. R. E. Farr, Minneapolis.—p. 179.
Origin and Significance of Minor Vertebral Deformities. J. M. Taylor, Philadelphia.—p. 183.
Complete Encephalitis. J. V. Haberman, New York.—p. 187.
The Intensive Treatment of Hay-Fever. W. Scheppegrell, New Orleans. —p. 191.
Method of Procedure in Treatment of Cases of Doubtful Initial Lesion. A. Sayre, New York.—p. 192.
On Collaborative Diagnosis. J. Gutman, Brooklyn.—p. 194.
Two Cases of Advanced Suppurative Disease of Lateral Sinus and Jugular Vein. C. E. Perkins, New York.—p. 195.

Basal Metabolism in Thyroid Disease.—Mayo asserts that a basal metabolic rate as high as from + 85 to + 100 may fall to + 35 or + 40 if the patient is placed under rest and treatment; this may, however, be but a fictitious improvement. A patient with a metabolic rate of + 56, who has survived a recent exacerbation and is improving, is a safer risk than a patient with a rate of + 46 who is on the rising wave of an exacerbation. Ligation should be performed under local or nitrous oxid anesthesia. Most patients can be operated on under local anesthesia. With modern technic and methods, the mortality in exophthalmic goiter has greatly decreased, probably due more to early operation than to the advances in surgery.

Military Surgeon, Washington, D. C.

July, 1921, **49**, No. 1

Work of Public Health Service in Care of Disabled Veterans of World War. H. S. Cumming.—p. 1.
After-Care and Medical Follow-up of War Risk Insurance Beneficiaries. J. G. Townsend.—p. 11.
Lesions of Knee in Ex-Soldiers. F. J. Cotton.—p. 20.
Venereal Prophylaxis J. S. Gomez.—p. 33.
Medical Aspects of Naval Aviation. J. F. Nenberger.—p. 39.
Flight Surgeon; Method for Securing Physical Efficiency. W. F. Bonner.—p. 50.
Occurrence of Mycotic Infections Among Arriving Aliens in Relation to National Preparedness. T. B. Anderson.—p. 53.
Recent Prevalence of Influenza and Its Preventive Inoculation in Japanese Navy. Y. Hori.—p. 62.
Medical Administration of Intermediate Section, France. E. L. Ruffner. —p. 72.
Pulmonary Tuberculosis, Pulmonary Mycosis and Pulmonary Spirochetosis. R. W. Mendelson.—p. 81.
Training of Surgeons for Surgical Teams. W. M. Thompson.—p. 83.
Treatment of Acute Empyema by Closed Method. A. E. Moringo.—p. 89.

Northwest Medicine, Seattle

July, 1921, **20**, No. 7

Roentgenologic Study of Pain in Right Lower Abdomen. J. T. Case, Battle Creek, Mich.—p. 165.
Relative Fields of Radium, Surgery and Cautery in Treatment of Cancer of Cervix. R. C. Coffey, Portland, Ore.—p. 173.
*Lethargic Encephalitis in Children. C. U. Moore, Portland, Ore.—p. 176.
*Myeloencephalitis. E. O. Houda, Tacoma, Wash.—p. 181.
Treatment of Influenza and Its Complications. J. T. Wood, Coeur d'Alene, Idaho.—p. 184.
*Auditory Hallucinations in Relation to Disease of Middle Ear. G. E. Price, Spokane, Wash.—p. 187.

Lethargic Encephalitis in Children.—Twenty-eight cases are analyzed by Moore. Instead of only one-third of the cases having lethargy, as with Comby in Paris, twenty-two patients were somnolent in type, or 80 per cent. In only nine cases do the histories mention a preceding illness. Two thirds of these were respiratory infections. The results show six deaths, or 20 per cent. mortality, and complete recovery in thirteen cases, or 46 per cent. These twenty-eight cases illustrate the many and varied forms of the disease. The youngest case was in a baby 6 weeks old.

Myeloencephalitis.—Houda describes finding a "virus" which showed as a very small active "micrococcus" in twenty-eight cases. The blood was taken from veins, transferred to sterile tubes, the ends of which are hermetically sealed in a gas flame to prevent contamination. After incubating for seventy-two hours or more, a vital slide made from the serum shows the virus more readily than a fresh blood slide. Seemingly the multiplication of this virus reaches a certain degree, after which further growth ceases in the same tube of blood. Transplantation has failed to produce a luxuriant growth on many culture mediums, aerobically and anaerobically. On the ordinary mediums, while no growth is visible, the vital slide shows the virus as still present after many days, if the tube is sealed to prevent evaporation and drying. In only one case was a growth obtained of what appeared as the same virus, but considering the method there is room for doubt. In one case a section of the cord was obtained postmortem aseptically. The culture medium used was a fresh calf brain. This was sectioned technically; a streak inoculation produced a growth in thirty-six hours along the line of inoculation. A vital slide on this was identical in appearance with the virus as seen in the fresh specimen, a very small active micrococcus. In six cases there were positive cultures on ordinary mediums. These showed no parallel characteristics. Each culture had peculiarities of its own. Morphologically they were classified as cocci and diphtheroids. In the blood tubes these types were readily differentiated from the small micrococcus present in practically every encephalitis case.

Auditory Hallucinations.—Price reports a case with marked auditory hallucinations of eight years' duration, without other evidence of mental disease.

Public Health Journal, Toronto

July, 1921, **12**, No. 7

Child Welfare. H. F. Royer.—p. 289.
Prevention of Amblyopia as a Sequel of Squint by Early Treatment. W. Wright.—p. 294.
Address to Graduating Class of Wellesley Hospital, Toronto. E. G. Flaws.—p. 298.
Study in Complement Fixation Tests for Gonorrhoea. M. L. Wessels. —p. 302.
Child Welfare in British Columbia.—p. 308.
Mothers! Breast Feeding of Infants is Best. J. J. Middleton.—p. 312.

Porto Rico Medical Association Bulletin, San Juan

June, 1921, **15**, No. 131

*Differential Diagnosis of Tropical Pyrexias. A. Torregrosa.—p. 93. Cont'n.
*Surgery in Porto Rico. Jorge del Toro.—p. 117.
*Chronic Appendicitis. J. Avilés.—p. 122.
*Fragility of the Kidneys. M. Salazaar.—p. 126.

Differential Diagnosis of Fevers Most Commonly Observed in Porto Rico.—In this instalment of Torregrosa's comprehensive monograph, he discusses colon bacillus septicemia in particular, describing epidemics of this colibacillosis. The sudden onset, rapid course and the algid phase and meningeal phenomena render it liable to be mistaken for pernicious malaria, especially as the leukopenia with mononucleosis is the same in both. The gastro-intestinal symptoms might suggest typhoid if it were not for the usual abrupt drop of the temperature the second day, which is a special feature of this

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tropical colibacillosis. The apyrexia may last for several hours or the whole day. He never encountered cases of associated malaria and colibacillosis, but in a few cases typhoid occurred in the course of malaria. Congestion in the lungs and pleural irritation were special features of this combination. He analyzes further the hyperpyretic, the algid and the diaphoretic forms of grave or pernicious malaria. The authorities on tropical fevers are freely quoted, with detailed case reports from Torregrosa's own extensive experience.

Surgery in Porto Rico.—Del Toro recalls that the success and progress of surgery in a country depends in large measure on the nonsurgeons, on the profession in general. Although a hospital may be small and possibly does not conform in every single respect to the accepted surgical ritual, yet the patient may get more personal attention than in the large hospitals, where it seems as if the work was done for the sole purpose of demonstrating the magnificent organization and rolling up statistics. In short, he adds, "it seems to me to be preferable to be a sick entity rather than a subject for a record." Gynecologic surgery, he says, is the most advanced in Porto Rico, and the proportion of operable cases of uterine cancer is large and increasing daily. Surgery of the pancreas and appendix is also on a par with surgery in other countries, as disease in these organs is recognized early. He remarks that bladder tumors do not seem to exist in Porto Rico. He pleads for more and better equipped hospitals, and better training in surgical diagnosis.

Chronic Appendicitis.—Avilés relates that in a recent series of twenty-two cases of chronic appendicitis the gallbladder was diseased, or there was ulceration in the duodenum, or symptoms indicating gastric ulcer, and in five cases there were pelvic complications.

Fragility of the Kidneys.—Salazar means by this term the tendency for the physiologic balance to be easily upset. He comments on the enormous prevalence of albuminuria in Porto Rico, and discusses the causes. Inherited syphilis seems to be a common factor; in one case profuse albuminuria for nearly a year in an elderly man subsided under persevering administration of potassium iodid. In other cases the albuminuria seems to be due to incipient tuberculosis, but malaria and intestinal autointoxication are the principal causal factors. Alcohol seems to be responsible for fragility of the kidneys in larger measure than before prohibition. Calcium chlorid, he says, is the ideal treatment to restore the balance in the kidneys in young and old. He gives from 1 to 5 gm. daily, according to age, fractioned, and merely dissolved in water. He warns against giving drugs when there is febrile albuminuria until the diuresis is at least 800 gm.

Texas State Journal of Medicine, Fort Worth

July, 1921, **17**, No. 3

Etiology of Chronic Peptic Ulcer. W. B. Russ, San Antonio.—p. 152.
*Debutante Slouch: A Factor in Surgery. O. L. Norsworthy, Houston. —p. 154.
Epidemic Encephalomeningomyeloneuritis. K. H. Beall, Fort Worth. —p. 157.
*Climate for Tuberculosis. B. Cornick, San Angelo.—p. 161.
Some Phases of Negro Tuberculosis Problem in Texas. Z. T. Scott, Austin.—p. 164.
Useful Versus Useless Public Health Measures. A. P. Harrison, Austin.—p. 167.
Results, Aim of All Health Work. A. H. Flickwir, Houston.—p. 171.
Essential Factors in Successful Malarial Control Work. L. G. Lenert, Austin.—p. 172.

Debutante Slouch.—The distorted shapes, deformed figures and weakened constitutions, to be treated as "ptotic habitus," as the result of the "debutante slouch," are in decided evidence in almost all social gatherings of young people today. A girl, however vigorous and well, may, through the "debutante slouch" and other mechanical interference of her normal shape and of her abdominal and pelvic organs develop ptotic habitus. In the presence of prenatal influence the "slouch" and other mechanical environments, develop the condition earlier in life and to a great degree, and under combined causes is more apt to be permanent in all its effects. People having long waists almost invariably have low placed and quite movable kidneys. When such individuals make overdrafts on their nerve force, nervous exhaustion, loss of fat and a more atonic state of the fibrous and other tissues, ensue. The same state of facts obtains with reference to all ptotic habitus individuals, whether of defective constitutions of congenital origin or those having a strictly environmental cause. The latter may become a factor in heredity in future generations. Treatment of all cases, whether of acquired origin or not, should be prophylactic. These patients should be urged to lead a type of life that will keep them in the best of health. They should seek occupations, mental and physical, compatible with their limitations. Gymnastics, deep breathing and knee chest postures, should be practiced daily. Front laced corsets should be worn constantly when not in bed. The corsets should be made to fit each individual. A well fitted, semilunar pad, extending entirely across the abdomen, below the umbilicus, fastened underneath the corset, will give increased comfort and add much to the support of the relaxed lower abdominal walls. All patients should have from two to three months in bed, with the foot of the bed elevated 18 inches. While in bed, a well regulated, fattening diet, general daily massage and attention to the bowels, followed by twelve months' use of correctly fitting front lace corset, and continuation of constitutional treatment in every respect before operation, should be required.

Atmosphere for Cure of Tuberculosis.—Of all the atmospheric factors which are found in those western regions which have earned a reputation for the climatic healing of tuberculosis, the one factor, Cornick says, which is universal, the only common factor, indeed, recognized everywhere in these western climates, is an atmosphere which has been dried in the rays of the sun. Altitude per se is not a factor in the cure. Altitude is merely a coincidence, which is found at certain climatic resorts where a dry atmosphere likewise prevails. Other things being equal, Cornick claims, we should seek for our patients agreeable temperatures both for winter and summer, since very high and very low extremes of temperature may be equally depressing to the average enfeebled health seeker, no matter whence he comes. Hundreds of health seekers fail every year to get the desired benefits of climate, simply because they are not taught in the elementary principles of personal hygiene. There is no warrant whatever for the claim that those who get well in the western climate must remain in the West for the balance of their days. It is true that in order to be safe they must give sufficient time to the cure, but that is the case everywhere. When once the cure is achieved, if they but continue to observe the fundamentals of correct living, they may go anywhere and continue to be safe.

West Virginia Medical Journal, Huntington

June, 1921, **15**, No. 12

Radium Treatment of Uterine Cancer. C. F. Burnam.—p. 453.
Radium in Control of Uterine Hemorrhage. J. F. Fox and R. O. Rogers, Bluefield.—p. 459.
Indications for Use of Radium. J. E. Hubbard, Huntington.—p. 464.
Treatment of Leukemia with Radium; Preliminary Report of a Case. R. O. Rogers, Bluefield.—p. 468.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

July, 1921, **15**, No. 2

Oriental Sore in Russian Turkestan and Results of Treatment with Injections of Tartar Emetic Solution. J. A. Sinton.—p. 107.
*Method for Cultivation of Blastocystis. H. P. Barret, Charlotte, N. C. —p. 113.
Incidence of Intestinal Parasites, Especially with Regard to Protozoa, Amongst Symptomless Carriers in Jamaica. H. H. Scott, Jamaica, B. W. I.—p. 117.
Sizes of Endameba Histolytica Cysts Among Symptomless Carriers in Jamaica. H. H. Scott, Jamaica, B. W. I.—p. 133.
Sizes of Endameba Coli Cysts Among Symptomless Carriers in Jamaica. H. H. Scott, Jamaica, B. W. I.—p. 149.
Cestodes from Indian Poultry. T. Southwell.—p. 161.
Cestodes from African Rats. T. Southwell.—p. 167.
New Species of Cestoda from a Cormorant. T. Southwell.—p. 169.
Case of Suspected Leprosy. J. W. W. Stephens and S. Adler.—p. 173.

Culture Medium for Blastocystis.—The culture medium used by Barrett is made up of human blood serum and 0.5

per cent. sodium chlorid solution. The salt solution is sterilized in the autoclave and the serum added after inactivation at 55 C. for one half-hour. The pooled serum of several individuals has been used instead of that from a single individual, although no work has been done to show whether or not one serum may be inhibitory while another is favorable to the growth of blastocystis. This medium is faintly alkaline to litmus. The medium is distributed in narrow test tubes in quantity sufficient to give a column of fluid at least 100 mm. high. No growth takes place at the surface of the tube, and the parasites multiply best at the lower portion of the tube, evidently needing little free oxygen for their growth.

Bristol Medico-Chirurgical Journal

March-June, 1921, **38**, No. 142

Some Problems in Surgical Treatment of Abdominal Conditions. F. Fraser.—p. 2.
Present Position of Psychotherapy. R. G. Gordon.—p. 11.
Teething Myth. R. C. Clarke.—p. 28.

British Journal of Surgery, Bristol

July, 1921, **9**, No. 33

*Value of Cecostomy in Treatment of Malignant Disease of Colon. H. Stiles.—p. 1.
*Eponyms. I. Colles' Fracture. D. Power.—p. 4.
*Fracture of Carpal Scaphoid. A. H. Todd.—p. 7.
*Palliative Treatment of Aneurysm by 'Wiring' with Colt's Apparatus. D. Power.—p. 27.
Fifty Cases of Hour-Glass Stomach Subjected to Operation. W. T. Thomas.—p. 37.
*Case of Hour-Glass Stomach. G. A. Ewart.—p. 42.
Intussusception: Review of 400 Cases. W. S. Perin and E. C. Lindsay.—p. 46.
Suppurating Teratomatous Cyst in Splenic Region. W. G. Spencer. —p. 72.
*Tumors of Salivary Glands, with Their After-History. R. Kennon.—p. 76.
*Prognosis of Carcinoma Mammae. Review of 169 Cases. G. P. Mills. —p. 91.
Case of Unilateral Polycystic Disease of Kidney in Child Aged Two Years. A. Fullerton.—p. 99.
*Congenital Occlusion of Ileum. J. Morley.—p. 103.
Kondoléon Operation for Elephantiasis. A. K. Henry.—p. 111.
Injuries of Diaphragm: with Special Reference to Abdominothoracic Wounds. C. W. G. Bryan.—p. 117.
Skin Grafting in Buccal Cavity. T. P. Kiner and T. Jackson.—p. 148.
Cystic Adenoma of Bile-Ducts. A. Evans.—p. 155.
Case of Splenomedullary Leukemia. R. E. Kelly.—p. 157.
Case of Tumor of Carotid Body. G. Keynes.—p. 159.
Renal Calculus: Horse-Shoe Kidney: Heminephrectomy.—p. 162.

Treatment of Disease of Colon by Cecostomy.—Stiles has become so convinced of the great value of cecostomy in the treatment of malignant disease of the large intestine that he has seriously considered the question as to whether it is advisable to do it as a preliminary to a resection at a later date, even in the absence of obstruction, just as a sigmoidotomy is done preliminary to removal of the rectum. At any rate, he advises a preliminary cecostomy in patients who, while not suffering from complete obstruction, are to be regarded as bad operative risks, because after the cecostomy they may pick up sufficiently to warrant the risk of the major operation. He mentions the value also of cecostomy in the treatment of megalocolon, of volvulus of the sigmoid, and of certain cases of diverticulitis. Here, again, the cecostomy may be done either as a preliminary to the major operation, or as a part of it, according as the merits of the case demand.

Colles' Fracture.—Power proposes to give in a series of articles the *ipsissima verba* of those surgeons whose names are associated with the diseases or injuries to which they first called attention. Here he takes up Colles' fracture, reproducing Colles' original paper on the subject published in the *Edinburgh Medical and Surgical Journal*, **10**:182, 1814, entitled "On the Fracture of the Carpal Extremity of the Radius."

Fracture of Carpal Scaphoid.—Todd shows that fractures of the carpal scaphoid are really very characteristic, and have well-marked and almost pathognomonic physical signs; that they should always be diagnosed at the time when they occur, because it is only then that treatment is capable of restoring a useful degree of function; and, lastly, that failure to diagnose these fractures, though very common at the present time, is fraught with the most serious consequences for the patient, inasmuch as it means that he will almost certainly have a permanently crippled wrist, in spite of all the treatments that he may undergo.

Colt's Apparatus for Treatment of Aneurysm.—In the cases reported by Power, other methods had been tried by competent persons under the best possible conditions of nursing, and had failed. In nearly all the cases the pain was relieved by wiring, and two of the patients returned voluntarily and asked for a second operation. In some of the recorded cases an actual cure of the aneurysm seems to have followed the introduction of the wire.

Case of Hour-Glass Stomach.—The case cited by Ewart shows that a satisfactory result can be obtained by an anterior retrocolic gastrojejunostomy, even though the jejunum proximal to the anastomosis is anchored to the posterior aspect of the stomach, which necessitates a certain amount of angulation in bringing forward the intestine.

Cases of Salivary Gland Tumors.—Of cases in which operation was performed for salivary gland tumors, 137 have been investigated by Kennon, and the after-histories of forty obtained, the majority of which are at least five years after the operation. Of these, 124 cases occurred in the parotid and thirteen in the submaxillary gland; of the former, the proportion of females to males was 59:19 in simple cases, 12:8 in carcinoma, 3:2 in sarcoma, and about equal in those of submaxillary origin. Of the 124 parotid tumors, 91 (73.4 per cent.) were adenomas (this tumor is also called embryoma, endothelioma, and mixed tumor), 27 (21.8 per cent.) were cancer, and 6 (4.8 per cent.) were sarcoma. Of the cancer cases, 7 out of 20 (35 per cent.) arose from degeneration of an adenoma. Two varieties of adenoma were recognized, the diffuse and the acinar; and two varieties of carcinoma, the spheroidal-celled and the cubical-celled (adenocarcinoma). Of the adenomas operated on over five years ago, 15.5 per cent. have recurred. Recurrence was immediate in the majority of cases, or under twelve months. It is due to the liberation of healthy cells so frequently seen splitting the capsule in the sections examined. Capsule-splitting with the resultant inflammatory reaction explains the sudden increase in size and pain so often described in the history of the patient. Excision rather than enucleation would diminish the risk of recurrence due to leaving remnants of capsule; and preliminary ligation of the external carotid artery is advisable in any large adenoma or malignant growth. Facial paralysis was not met with prior to operation in the simple cases. Postoperative facial paralysis is more frequently due to tension relaxation of the nerve by removal of the tumor than to nerve section, and is therefore usually temporary. The contention that operation hastens inoperable recurrence, shortens life, or causes disfigurement has no support in this research; and the fact that 35 per cent. of cases of carcinoma arise in simple tumors of long standing serves as a warning to those willing to allow a preoperative delay of seven years in primary cases and five and a half years in recurrent cases.

Prognosis of Carcinoma Mammae.—The 169 cases reviewed by Mills were all pathologically carcinoma, and in all but 11 of them a clinical diagnosis of carcinoma was also made before operation. Of the 118 cases traced, 47 patients, or 39.8 per cent., were living and well at the end of six years; of 87 hospital patients, 32, or 35.5 per cent., were well; of 31 private cases, 15, or 48.4 per cent., were well. This difference is not due entirely to the private patients having been operated on earlier. Taking a six-year standard of cure, the results of a representative series of cases of carcinoma mammae operated on by various surgeons are as follows: all cases, 39.8 per cent. cured; gland-infected cases, 18.3 per cent. cured; gland-free cases, 62.9 per cent. cured. The prognosis is worst for carcinoma simplex (32.9 per cent.), better for a "squamoid" (40 per cent.), better still for a carcinoma simplex with overgrowth of duct epithelium (57.1 per cent.), and very good for papillary carcinoma (100 per cent.). Clinical enlargement of axillary glands, even if hard, is no proof of their pathologic involvement, nor is absence of clinical enlargement proof of their freedom from involvement. Age

at operation, duration of growth, and adhesion to the skin, have little effect on the prognosis. Adhesion to muscle is a bad sign in the prognosis, the difference in the percentage of cures between adherent and free cases being nearly 30. The prognosis is much the best in people of normal fatness; it is very bad in the obese, and probably bad in spare patients. Of individual operations, one on the lines laid down by Sampson Handley gives the best results, especially in gland-free cases, but is very closely followed by Halstead's operation. Early gland-free cases, however, do extremely well after removal of the breast, pectoral fascia, and axillary glands. Occasionally even an advanced carcinoma will do unexpectedly well after an admittedly imperfect operation.

Congenital Occlusion of Ileum.—Two cases of congenital occlusion of the lower ileum are reported by Morley. One was a case of occlusion of the ileocecal valve, and the other was a case of occlusion due to volvulus of the ileum.

British Journal of Tuberculosis, London

July, 1921, **15**, No. 3

Beneficent By-Products of Tuberculosis Movement. T. Clifford Allbutt, Cambridge.—p. 101.
Vaccination of Cattle Against Tuberculosis. A. Calmette, Paris.—p. 103.
Tuberculosis. A. Newsholme.—p. 105.
Training in Tuberculosis. S. L. Cummins, South Wales and Monmouth. —p. 109.
*Care of Tuberculous Cripples: A Proposed Scheme. T. H. Martin, Leasowe.—p. 112.
Future of Sanatorium. A. N. Robertson, Benenden, Kent.—p. 115.
Work of Tuberculosis Care Committee. P. R. McNaught, York.—p. 118.

Care of Tuberculous Cripples.—The following points are urged by Martin (1) The introduction of special teaching in the medical schools and facilities for postgraduate study. (2) The inauguration of a diploma in tuberculosis in order that specially trained officers may be available for the work. (3) The centralization of the work for nonpulmonary tuberculosis under one head, namely, the Medical Officer of Health and his Surgical Tuberculosis Officer, as against the multiplication of responsibilities which now exists. (4) The treatment of these cases in special hospital schools and residential open-air schools, as against their reception into the wards of the general hospitals and the convalescent homes. (5) The establishing of after-care clinics and the necessary machinery for following up cases which have undergone treatment, in order that the results obtained from the treatment of this disease may be most effectively checked.

Journal of Pathology and Bacteriology, London

July, 1921, **24**, No. 3

Heterophile Antigen and Antibody. T. Taniguchi.—p. 241.
Acute Yellow Atrophy of Liver and Fatty Infiltration of Liver and Kidney which Results from Action of Certain Poisons on Liver. A. G. R. Foulerton.—p. 257.
*Development of Female Phase of Leukocytozoon Syphilidis. J. E. R. McDonagh.—p. 272.
Pathology and Pathogenesis of Spirochetosis Icterohemorrhagica. C. Basile.—p. 277.
*New Method for Staining Bacterial Flagella. S. G. Paine.—p. 286.
*Histopathology of Typhus Fever. A. C. Stevenson and A. Balfour.—p. 289.
*Effect on Guinea-Pig of Deprivation of Vitamin A and of Antiscorbutic Factor. Condition of Costochondral Junctions of Ribs. F. M. Tozer. p. 306.
Sizes of Red Blood Cells in Emphysema. C. P. Jones.—p. 326.
*Lesions Produced in Rabbits by Inoculation of Streptococci Isolated from Rheumatic and Other Lesions in Human Subject. W. W. C. Topley and H. B. Weir.—p. 333.
Wassermann Test Using a Method of Prolonged Fixation at Ice-Chest Temperature. E. J. Wyler.—p. 349.

Leukocytozoon Syphilidis.—The organism has been studied by McDonagh in vivo, stained with borax-methylene blue, and in section stained for the most part with pyronin and methyl green from the time it leaves an endothelial cell till it becomes a zygote.

Staining Bacterial Flagellae.—The method described by Paine was invented by the late H. G. Plimmer. The stain is made as follows: Tannic acid, 10 gm.; aluminium chlorid (hydrated), 18 gm.; zinc chlorid, 10 gm.; rosaniline hydrochlorid, 1.5 gm.; alcohol 60 per cent., 40 c.c. The solids are placed together in a mortar, and at once (i. e., before deliquescence) triturated with the alcohol. Ten c.c. alcohol are used first and the mass is mixed thoroughly, care being taken to smash up the whole of the zinc chlorid—at this stage a homogeneous paste of a golden brown color is obtained—the rest of the alcohol is then stirred in slowly, when the mass goes gradually into a viscous solution of deep red color. In this state the stain appears to remain stable for several years. For use, it is diluted with water when nearly complete precipitation occurs, a small amount remaining in solution, evidently as a balanced colloid, which, when applied to the bacterial film, becomes absorbed on the flagella and periphery of the organism. No further treatment is necessary, but it is advisable to stain the body of the organism with fuchsin or methylene blue. The mordant is applied to the film without fixing as follows: 1 part of the stain, 0.5 c.c., say, is mixed with 4 parts of water, 2 c.c. in a small corked specimen tube. After inverting the tube three or four times it is allowed to stand for sixty seconds, then filtered through a small filter on to the slide and again allowed to remain for sixty seconds, when a slight bronzing should be visible on the surface. It is then washed rapidly under the tap. The film is then flooded with cold carbol fuchsin for five minutes, washed, dried, and examined in oil. If satisfactory, the film may be mounted in Canada balsam.

Histopathology of Typhus.—Stevenson and Balfour do not think the time has yet come to draw any definite conclusions on their typhus work, despite the recent advances which have been made in the knowldege of Rickettsia. A study of the literature and of specimens they have seen at various times induces them to keep an open mind on the question. So many different species of Rickettsia have been found that despite Kuczynski's statement as regards their successful cultivation, they confess to having doubt as to their exact nature, let alone their pathologic significance.

Deprivation of Vitamin A.—The results are recorded by Tozer of experiments on the guinea-pig which were devised to investigate and distinguish between the effects produced by deprivation of antiscorbutic, of vitamin A, or of both these accessory factors together, with special reference to the histologic condition of the bone itssue. The suggestion is confirmed that deprivation of vitamin A has a pronounced effect on the bone tissue, indistinguishable, under certain conditions, from the effects of scurvy. An attempt is made to define true scurvy symptoms as shown during life, at necropsy and from histologic examination, and to distinguish them from symptoms caused by absence of vitamin A. Histologic appearances at the costochondral junction bearing some resemblance to rickets are described and illustrated. These peculiar abnormalities have been observed in animals suffering from prolonged deprivation of vitamin A, and from mild and from acute scurvy complicated by deficiency of vitamin A.

Streptococcal Lesions in Rabbit.—As the result of the post-mortem examination of a fatal case of acute rheumatism, a streptococcus was isolated by Topley and Weir, cultures of which, when inoculated into rabbits, produced lesions similar to those already described by several workers. The effect of passage on this organism has been studied, especially with regard to the possibility of the presence or development of any tendency towards localization in particular tissues; and the results obtained have since been compared with those following the inoculation of streptococci from other sources. The results obtained may be summarized as follows: Of twenty-nine rabbits inoculated with streptococcus 5189, three showed no effects. The remaining twenty-six developed pyrexia, associated in all but three cases with definite lesions. Twenty-three animals developed arthritis; seventeen, a pericardial effusion; two, endocarditis; and one appendicitis. Two points seem clear: (1) It is possible to produce in rabbits, by inoculation with streptococci derived from cases of acute rheumatism, lesions which together reproduce most of the features of the disease as it occurs in man. (2) Similar lesions may be produced by inoculation with streptococci obtained from sources quite unconnected with rheumatic infection. If these conclusions be correct it is clear that there is no *Streptococcus rheumaticus* in the strict sense of the term. We are left then with three possibilities: (1) Acute rheumatism is an attenuated pyemia, due principally to streptococci, as suggested by Singer (1898) and by Menzer

(1902). (2) Acute rheumatism is due to streptococci which have peculiar properties, as suggested by Rosenow. (3) The streptococci isolated from cases of acute rheumatism are merely secondary invaders, a view that has been supported by many authorities.

Journal of State Medicine, London

July, 1921, **29**, No. 7

Relation of Medical Zoology to Public Health Problems. R. W. Hegner, Baltimore, Md.—p. 199.
Army Medical Staff Administration in Field. O. Wibin.—p. 211.
Encephalitis Lethargica. B. Lawrence.—p. 216.

Journal of Tropical Medicine and Hygiene, London

July 15, 1921, **24**, No. 14

Occurrence of Twelve-Day Fever of Dengue Group in Nigeria. L. W. Davies and W. B. Johnson.—p. 189.
Case of Psoriasis. A. Viswalingam.—p. 192.

Lancet, London

July 23, 1921, **2**, No. 4

Accuracy in Diagnosis. D. Drummond.—p. 165.
Etiology of Skin Diseases. A. Whitfield.—p. 168.
*Case of Primary Tumor of Pleura. E. H. Eastwood and J. P. Martin. —p. 172.
Case of Cure of Detachment of Retina. R. F. Moore.—p. 174.
Operative Urethroscopy: An Improved Urethroscope. W. W. Powell. —p. 175.

Primary Tumor of Pleura.—A man, aged 38, had a slight cough, and suffered from shortness of breath. The breathlessness had gradually increased until he was unable to go about his work, and was compelled to sit in a chair all day. He had no pain in any part of his body, but for a fortnight he had been aware of a tender spot on his breast bone. There was a prominence on the chest just below the angle of the sternum, and at the left side of this prominence, at the junction of the third costal cartilage with the sternum, there was a point of great tenderness. The surrounding area was not tender. The other signs were those of a large right-sided thoracic effusion—dulness on percussion over the whole of the right side of the chest and extending in front across to the left border of the sternum above the area of cardiac dulness; no Grocco's triangle; vocal fremitus absent on the right side; breath sounds absent anteriorly but present posteriorly, bronchial in type, and weak; vocal resonance much less on the right side than on the left. The apex beat was displaced 2 inches outside the nipple line and in the sixth interspace; heart sounds normal. There was no other visible or palpable pulsation in the chest. Measurement showed that the two sides of the chest were equal. Frequent aspirations of first straw colored then blood stained fluid were made. The patient died suddenly eleven weeks from the onset of symptoms. On opening thorax a growth was found which took the form of massive nodular thickening of the parietal pleura lining the whole of the ribs, costal cartilages, sternum, and diaphragm on the right side, and which to some extent had spread on to the visceral pleura at the root and base of right lung. There were no bands or adhesions. The right lung was collapsed and fibrous, and except at the base and root was covered with thickened pluera which was apparently inflammatory and not new growth. At its base the lung had been superficially infiltrated with growth, which formed a nodular layer about ¼ inch to ¼ inch thick. The growth had extended between the fourth and fifth ribs on the right side to form a subcutaneous swelling above noted, but had not infiltrated the bone or cartilage. The left pleura and lung were normal, except for a few superficial scattered nodules of growth on the visceral pleura and a slight degree of emphysema of the lung. The mediastinal glands were somewhat enlarged, and were found to be heavily infiltrated with growth. Histologically the tumor consisted of a fibrous tissue stroma in which were seen epithelial-like cells of rather polymorphous appearance, varying according to their situation from round, flat cells, indistinguishable from squamous epithelium, to pear-shaped or spindle-shaped forms. The cells were grouped in columns or clumps, but no definite alveolar arrangement could be made out. The very few blood vessels seen were mostly well formed.

South African Medical Record, Cape Town

June 25, 1921, **19**, No. 12

Intestinal Radiography for Chronic Appendicitis. L. E. Ellis.—p. 223.
Problem of Tuberculosis in South Africa. J. A. Mitchell.—p. 226.
Specific Vaccines for Treatment of Acute Gonococcal Urethritis and Its Complications. F. Veglia.—p. 230.
Native Preventives of Anthrax Infection. J. Lewis and O. F. Gibbs. —p. 232.

Archives des Maladies de l'Appareil Digestif, Paris

June, 1921, **11**, No. 3

*Chronic Stenosis of Duodenum. P. Duval and J. Gatellier.—p. 145.
Gastritis in the Gassed. C. de Luna.—p. 208.
*Invagination of Large Intestine in Adult. J. Tourneix.—p. 213.

Chronic Stenosis of Duodenum.—Duval and Gatellier devote nearly fifty pages with seven illustrations to this study of chronic stenosis below the ampulla of Vater from congenital malformation of the peritoneum, especially stenosis from compression by an artery, and means to remedy it. As two incisions are required to correct conditions in duodenum and colon, they prefer to operate at two sittings: first duodenojejunostomy, with fixation of the right colon later. Some cases are described and the anatomic findings in forty-six others in which nothing was done beyond breaking up adhesions during an operation for other causes.

Invagination in Adult.—The condition in the man of 34 was found too grave for operative relief, and necropsy confirmed the invagination of the entire right half of the large bowel with part of the ileum.

Bulletins de la Société Médicale des Hôpitaux, Paris

June 24, 1921, **45**, No. 22

Landouzy's Typhobacillosis in Children. J. Comby.—p. 939.
*Miliary Tuberculosis in a Diabetic. G. Caussade and E. Doumer.—p. 942.
*Spontaneous Retrogression of Linitis. E. Enriquez and Gaston-Durand. —p. 949.
*Potassium Chlorid as a Diuretic. L. Blum, E. Aurel and R. Lévy.—p. 955.
Influenza as Factor in Tuberculosis. Crouzon and Marceron.—p. 965.
*Tendon Reflexes After Lumbar Puncture. G. Guillain.—p. 967.

Acute Miliary Tuberculosis in a Diabetic.—Caussade and Doumer's case was peculiar in that the clinical picture was that of Landouzy's typhobacillosis.

Retrogression of Linitis.—The total hypertrophic retraction of the stomach in the woman of 31 was found too extreme for intervention at the exploratory laparotomy in 1910. There had been symptoms for a year, with difficulty in swallowing, pains, vomiting, and distaste for meat. The symptoms continued for a few years and then gradually improved, while roentgenoscopy showed the stomach gradually returning to normal shape. The gastric symptoms for the last year have been restricted to vomiting two hours after meals and sometimes in the morning. The history of old tuberculosis suggests the possibility of interstitial tuberculous infection of the stomach which in time has retrogressed except in the region of the pylorus. Treatment for syphilis in the early stage had been ineffectual. If it had been applied during the third or fourth year, it would have been credited with the retrogression of the linitis.

Potassium Chlorid in Nephritis with Edema.—The experiences related show that instead of inducing retention of fluids, like sodium chlorid, potassium chlorid increases the output of urine, acting like a powerful diuretic. In some of the cases tested it proved effectual in this respect when all other diuretics had failed. Three instructive cases are described. The drug has a laxative action in those predisposed to diarrhea, and if it is not properly eliminated the patients complain of nervous symptoms, weakness, fatigue, headache and chilliness. There are no cardiovascular by-effects if the circulatory system is intact, but otherwise there may be dyspnea, cyanosis, a sensation of constriction and morbid apprehension and extrasystoles, and the blood pressure may fall. To avoid these symptoms of intolerance, the dose must be kept below 5 to 7.5 gm. in the twenty-four hours. It is wise to test the tolerance with 1 gm. doses at first. In one of the cases reported, the edema with amyloid nephritis was not modified by the potassium chlorid although the drug was borne and eliminated well.

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Modification of Tendon and Skin Reflexes by Lumbar Puncture.—Guillain protests against assuming that lumbar puncture is a harmless procedure, without any importance for the patient. The simplest and most normal lumbar puncture may entail disturbances, painful at least, if not grave. He reports a case of syphilitic paraplegia with exaggeration of the tendon reflexes and retention of urine. Lumbar puncture confirmed the syphilitic nature of the partial paraplegia, but it was followed by exaggeration of the paraplegia while the reflexes were completely transformed. This modification proved transient; in five or six days the abolished tendon reflexes had returned to the previous exaggerated form.

Gynécologie et Obstétrique, Paris

1921, **3**, No. 6

Combined Radium and Roentgen Ray Treatment of Cancer of Uterine Cervix. S. Recasens.—p. 387.
*Terminal Vessels of Abdominal Aorta. Maurer and Portes.—p. 393.
Primary Syphilitic Phlebitis. Y. Manouélian.—p. 407.
*Rupture of Varix on Fibroma. A. Chalier and L. Morénas.—p. 412.
Hemisection of the Uterus for Access to Adnexa. C. Daniel.—p. 420.

Terminals of Abdominal Aorta.—Maurer and Portes give illustrations of the forking of the abdominal aorta and the course of the various vessels in this region, as determined in fifty female cadavers.

Flooding of Peritoneum from Rupture of Varicose Vein on a Fibromyoma.—Chalier and Morénas have compiled fifteen cases of sudden hemorrhage from this cause before 1910, and summarize four since, and describe a case from their own service. The clinical picture was about the same in all. The patient, a woman approaching the menopause, previously in good health and with nothing to suggest menstrual disturbance, suddenly experienced severe pain in the abdomen, accompanied by a tendency to syncope. Other symptoms developed indicating extensive internal hemorrhage, with tenderness suggesting peritonitis from perforation. The sudden onset occurred in bed in one case; in the street, the woman carrying a large basket, in another. If an exploratory laparotomy follows at once, the differential diagnosis is not important, but the most serious consequences would be the result of mistaking the symptoms from this flooding of the peritoneum for an abdominal crisis from tabes, hydronephrosis or kidney stone, with nothing but medical expectant treatment.

Journal d'Urologie, Paris

May-June, 1921, **11**, No. 5-6

*Postoperative Renal Hemorrhage. F. Legueu.—p. 345.
*Surgical Treatment of Medical Nephritis. Pousson.—p. 353.
*Suppuration in Polycystic Kidney. M. Chevassu.—p. 373.
*Suprarenal Tumor in Abdominal Wall. F. Curtis and G. Potel.—p. 403.
*Calculus in Ureter. Rafin.—p. 425.
*Incomplete Evacuation of Female Bladder. P. Bazy.—p. 441.
*Surgical Treatment of Cancer of Bladder. Rochet.—p. 447.
*False Cystitis. P. Nogués.—p. 457.
*Cystoscope Findings with Bowel Tumor. E. Michon.—p. 463.
*Suprapubic Prostatectomy. G. Marion.—p. 467.
The Optics of Cystoscopes. Heitz-Boyer.—p. 481.
The New Aspects of Urinary Surgery. O. Pasteau.—p. 497.
*Anesthesia and Acidosis. E. Jeanbrau, P. Cristol and V. Bonnet.—p. 505.
*Antigonococcus Vaccine Therapy. G. H. Richard.—p. 513.
*Osteofibroma of the Kidney. E. Desnos.—p. 529.
*Anuria from Calculus after Nephrectomy. André and Grandineau.—p. 551.
Danger from Old Solutions of Silver Salts. J. Janet.—p. 559.

Postoperative Hemorrhage from the Kidney.—Legueu discusses the bleeding severe enough to require secondary nephrectomy. An important vessel severed during a partial operation on the kidney was responsible for the hemorrhage in only one of his sixteen cases of the kind in ten years. In four of twelve cases investigated with minute care, a small infarct was evidently responsible, and in six of the cases an abnormal artery was responsible for the infarct. In another case the congestion and bleeding from the small vessels occurred around a patch of sclerosis. The presence of infection he regards as the factor which determines whether the infarct will entail hemorrhage or not.

Surgical Treatment of Medical Nephritis.—Pousson has a record of 29 cases in which he operated after failure of all medical measures. In the 7 cases of acute nephritis, 5 recovered after nephrotomy and one of the 2 nephrectomized. The other, he thinks, might have been saved if merely nephrotomy had been done. This relieves congestion, permits antisepsis, and drains—which is all that is needed. Decapsulation acts only on the congestion alone. One woman thus treated twenty-four years ago is still in the best of health. In the 11 cases of chronic nephritis, with uremia, edema or oliguria or all combined, the fourteen operations were followed by the death of 6 of the patients, but the condition of all had been most alarming, and 5 were saved. One man of 31 was improved by the nephrotomy but six months later nephrectomy was required. He is still in good health, seven years later. The interval since recovery after nephrotomy is nearly six years in another case, and nine months in another. All the others have died since from the steady progress of their kidney disease or from the acute exacerbation which the decapsulation failed to arrest. In 4 other cases of paroxysmal pains, no calculi were found in the kidney at nephrotomy but all were permanently freed from their pains by it. Profuse hematuria in the midst of apparent health required nephrectomy in 2 other cases, and nephrotomy in 2, with permanent recovery in all.

In 3 cases bilateral decapsulation was done to relieve the edema in ordinary Bright's disease. It returned five months later in one case, and the man of 38 died at the seventh month, the symptoms pointing to the heart. The second patient was syphilitic, and he still has polyuria but less albuminuria, and the general condition keeps good. In the third patient in this group, a man of 55, the nephritis had developed after a contusion of the right kidney. Tenacious and rebellious edema, slight uremia and oliguria were cured by double decapsulation. They returned again seven months later but were banished this time by medical measures alone, including restriction of salt. Pousson regards this case as a fine demonstration of the importance of surgical treatment of medical nephritis after failure of all other measures.

Suppuration in Polycystic Kidneys.—Chevassu reports 4 cases of this kind and has found 88 on record. The only group free from fatalities includes the 3 cases in which nephrotomy was done first and nephrectomy followed later. Primary nephrectomy yielded only 16 recoveries in 25 cases, and only 3 of these are still living after from four to ten years. In his own 4 cases, rinsing out the kidney pelvis restored one patient to active life on two occasions, the effect becoming manifest in less than two days.

Suprarenal Tumor in Abdominal Wall.—The small tumor in the epigastrium of the woman of 68 had been stationary for five years when it began to enlarge. By the sixth year it covered an area of 6 by 10 cm. but was not tender, and there were no symptoms from the viscera. As it bled profusely at the least scratch, the tumor was removed. It proved to be a complete suprarenal capsule located in the abdominal wall; in the course of time it had developed a neoplasm. The case suggests that certain hemorrhagic lipomas in the abdominal wall may have been in reality this type of aberrant suprarenal tissue. The extremely vascular character and the expansion with the pulse are features not found in ordinary tumors.

Calculus in Ureter.—Rafin performed four operations in one of his 20 operative cases of this kind, and in 4 cases another calculus was expelled spontaneously several years later. The results of surgical treatment are very satisfactory, but the surgeon must bear in mind that the injury from the impacted calculus predisposes to infection later, and the urine must be kept under supervision. If the calculus was of the "constitutional type," the diathesis should be combated; if of the "organ type" the urinary passages should be kept open and disinfected. His 20 cases are described in detail and compared with a similar series in which the calculus was finally spontaneously expelled.

Incomplete Evacuation of Bladder in Women.—Bazy warns that attacks of cystitis are liable to reduce the elasticity of the bladder in time, until it is unable to expel its contents completely. He describes six cases of the kind out of a much larger experience, all in women over 50. In only one instance, inflammatory adhesion from old adnexitis was responsible.

Cancer of the Bladder.—Rochet has found that a portion of the bladder no larger than a nut, left after resection for cancer, may stretch to form a reservoir as large as a mandarin orange. Even if recurrence should follow—two, three or four years later, the restoration to health in the interim amply repays for the extensive operation. He has performed nine operations of the kind, and describes the ultimate outcome in the six traced to date. One man of 40 is in good health three years since the partial cystectomy. The others have been lost track of or have died with intervals of a few months to two years. One man of 30 had recurrence in the scar from the operation, and the scar and more of the bladder was resected. During convalescence the inguinal glands enlarged, and these were resected. The ultimate outcome is not known in this unusual case. In conclusion he cites cases with known survival for six years or more even after total cystectomy for cancer. The only means for accurate diagnosis in men is with an exploratory cystotomy, with the consent of the patient to resection if malignant disease is found. The delicate point is that the patient has to be warned of the possibility of a rebellious fistula whether the cancer is removed or not. If total cystectomy is required, he warns not to waste time with the ureters but to fasten them temporarily to the skin.

False Cystitis.—Nogués explains how some chemical modification of the urine, especially in summer, from medication or beverages or foods, is liable to induce sensations resembling those of cystitis. This may be induced likewise by a calculus at any point in the urinary apparatus. Sedatives should be given by the rectum to act on the bladder itself. Epidural injections of physiologic saline, with or without procain, are a precious resource, as also general treatment.

Cystoscopy with Tumors in Sigmoid Flexure.—Michon gives a colored illustration of the aspect of the vertex of the bladder involved in a tumor of the adjacent bowel. When the latter is latent, the site of the change in the bladder wall should suggest the true cause, as bladder tumors are seldom in the dome of the bladder.

Suprapubic Prostatectomy.—Marion says that the outcome of suprapubic prostatectomy will be perfect in suppurating chronic prostatitis, long rebellious to medical meaures, unless pain predominates in the clinical picture. The suprapubic prostatectomy may not cure the pain, as this is more from neuralgia than from the prostatitis. One of his nine patients thus treated succumbed to streptococcus peritonitis. This warns that the operation had better be deferred when streptococci are found in the blood.

Anesthesia and Acidosis.—Jeanbrau and his co-workers tested the urine of thirty-five patients before and for three days after major operations under various forms of anesthesia. The findings show that acidosis followed in all the cases except those in which spinal anesthesia with procain (syncaine) had been employed. The latter anesthetic should therefore be preferred, they say, in cases of unstable balance, and also when kidney or liver functioning is substandard.

Vaccine Therapy of Gonococcus Disease.—Richard's long review of recent literature on this subject confirms the efficacy of antigonococcus vaccines and serums against the complications of gonorrhea. But the gonococci in the urethra are seldom affected by them.

Osteofibroma of the Kidney.—Desnos analyzes three cases of this kind, one from his own practice, giving colored plates. In this case, after an attack of profuse and protracted hematuria there was a lull for ten years, with only a little vague pain. Then hematuria and severer pain occurred intermittently, and hydronephosis was suspected. Aggravation of the symptoms finally compelled nephrectomy, with complete relief for three months. The tumor proved to be an osteolipofibroadenoma of the kidney, and numerous metastatic tumors rapidly developed throughout the abdomen, with death within eight months.

Anuria from Calculus.—The anuria developed the fourteenth day after removal of the tuberculous right kidney. It proved impossible to catheterize the left ureter, but the anuria yielded to nephrostomy the sixteenth day. Before the anuria there had been nothing to suggest a calculus, and after the nephrostomy, catheterization of the ureter up to the obstacle finally dislodged it, the apparently single calculus being thus found to be two impacted stones. They were expelled in the urine as soon as they strung out one behind the other.

Lyon Chirurgical, Lyons

May-June, 1921, **18**, No. 3

*The Sympathetic Neuromas of Appendicitis. P. Masson.—p. 281.
*Pulse Sign of Arteriovenous Aneurysm. N. Dobrovolskaia.—p. 300.
Roentgenography of the Wrist. E. Destot.—p. 309.
*Surgical Treatment of Tabetic Gastric Crises. G. Jean.—p. 339.
*Congenital Dislocation of the Wrist. F. Masmonteil.—p. 351.
Adaptation of Circulation to Ligation of Artery. R. Leriche and A. Policard.—p. 356.
History of Surgery at Lyons. E. Villard.—p. 361.

Neuroma in Obliterated Appendix.—When the inflamed appendix becomes blocked, the nerve terminals are then liable to proliferate and form an actual neuroma. Masson has encountered ten such cases, and gives here the photomicrograms of three. This neuroma of sympathetic nerve fibers is enclosed in a fibrous sheath, and this in turn in a double shell of muscle. Every contraction of this muscular shell presses on the neuroma, and may set up reflex action of diffcrent kinds, as with a neuroma after an amputation. In one of the three cases described, there was a cancer in the ileocecal valve. In the second case nothing was found in the stomach at the laparotomy to explain the pain and tenderness in the stomach, but the neuroma in the obliterated appendix was probably the cause. In the third case there had been merely a history of chronic appendicitis. This neuroma formation was found in all but one of his ten cases of obliterating latent appendicitis.

Pulse Sign of Arteriovenous Aneurysm.—Pressure on the artery above the aneurysm slows the pulse when both artery and vein are involved in it, but not with a merely arterial aneurysm. In a case described, after resection of the aneurysm, the pulse could not be modified in this way.

Operative Treatment of Gastric Crises in Tabes.—Jean admits that he has never applied in a clinical case the procedure he has been studying for two years on animals and cadavers. He reviews the work in this line by various surgeons aiming to block or resect the pneumogastric, the posterior roots, or the visceral sympathetic, but he regards the great splanchnic nerve as the one to attack. When this nerve is severed from the posterior roots, fifth to ninth, the sensitivity of the stomach is abolished. The easiest access to the great splanchnic, where it lies just beyond the azygos vein, is through the pleura from the back, after resection of the eighth rib. When the pneumogastric is the principal factor in the gastric crises, the preferable intervention seems to be section of four branches of the pneumogastric on the anterior plane of the stomach, and one branch on the posterior plane, plus gastro-enterostomy. But when the sympathetic nerve predominates in the crises, the thoracic ganglia should be excised or the great splanchnic nerve resected. He describes the technic. In addition he reports a case in which the five posterior roots and their ganglia on each side were resected in a case of severe and almost continuous gastric crises. Postoperative paraplegia followed, and as this showed signs of improvement, intercurrent congestion of the lungs proved fatal the fifth day.

Madelung's Disease.—Masmonteil explains that congenital dislocation of the wrists represents what genu valgum and coxa vara represent for other joints. Treatment requires, besides wedge resection of the radius, resection of a low segment of the ulna.

Presse Médicale, Paris

June 29, 1921, **29**, No. 52

*Overlapping Infections of Air Passages. M. Nobécourt.—p. 513.
*Congenital Torticollis. A. Feil.—p. 515.
Examination Before an Operation. G. Audain.—p. 516.

Overlapping Infections of Air Passages.—Nobécourt incriminates hypertrophied tracheobronchial glands as aiding in the settling of other infectious processes in the region. He analyzes the resulting clinical pictures, and urges the importance of curing promptly any infection of the pharynx before it invades the lower air passages. The tracheobronchial gland-

ular process may be very small and mild, but on account of superimposed infection the clinical picture is that of advanced tuberculosis.

Congenital Torticollis.—Feil illustrates some cases in which the fusing together of the upper vertebrae caused tilting of the head. In some this occipitalization of the atlas, as he calls it, was apparent from birth. In others it did not become apparent until the age of 20. It accompanied congenital torticollis in two of the cases described, and the slight deviation of the head persisted after operative correction of the torticollis.

July 2, 1921, **29**, No. 53

*Prostatism Without Hypertrophy of Prostate. J. M. Bartrina.—p. 521.
Cysticercus Spinal Meningitis. Titu Vasiliu.—p. 522.
*Intraspinal Injection of Stimulant. R. Bloch and Hertz.—p. 523.

Diagnosis of Hypertrophy of the Prostate.—Bartrina comments on the blunders that have been made in ascribing to the prostate disturbances for which syphilis or Pott's disease or a diverticulum in the bladder, paralysis of the bladder, or spinal cord disease was responsible. In another group of cases, he continues, the symptoms of prostatism without a palpable prostate are due to an epithelioma developing in or near the prostate. Neuritic manifestations from the incipient epithelioma may give the clue long before physical signs are pronounced enough for diagnosis otherwise. The phenomena from any impairment in the contracting power of the bladder may owe their origin to incipient epithelioma in the normally sized prostate. There may be nothing beyond retention of urine to call attention to the prostate, but if the prostate is removed the microscope will reveal epithelioma cells. He adds that if surgeons would follow the history of these "prostatism without prostate" cases, they would be surprised at the large proportion that develop malignant disease sooner or later.

Treatment of Syncope at Spinal Anesthesia.—Bloch and Hertz have witnessed the whole range of acute reactions to spinal anesthesia in their over 1,000 applications of this form of anesthesia. They are usually combated by subcutaneous injections of stimulants, but the action of this is so slow that they now, in grave cases, inject about 20 cg. of caffein directly into the spinal cavity, as for the anesthesia itself. In four cases described, this resuscitated the patients almost at once after complete arrest of the respiration. It is mentioned of one patient that he did not have even a headache thereafter. Their experimental research seems to indicate that the caffein under these circumstances acts only as a stimulant for the centers in the medulla oblongata.

Progrès Médical, Paris

May 28, 1921, **36**, No. 22

Importance of Oral Infection. L. Watton and A. Aimes.—p. 253.
Spina Bifida and Vertebral Anomalies. A. Feil.—p. 256.
Epidemic Hiccup. A. Hanna.—p. 257.
Psychiatry, War and Revolution. Laignel-Lavastine.—p. 258.

June 18, 1921, **36**, No. 25

Modern Treatment of Uterine Cancer. A. Brechot.—p. 287.
*Cancer of Uterine Cervix During Gestation. H. Vignes.—p. 289.
Radium Treatment of Uterine Cancer. J. Barcat.—p. 290.

Cancer of Uterine Cervix During Gestation.—Vignes remarks that a cancer developing in the cervix during a pregnancy is usually recognized early, as the hyperemia in the region whips up the incipient cancer, and it bleeds early and frequently and spreads rapidly, often with pains and dysuria or hematuria. One case is on record in which an inoperable cancer of the cervix was treated with radium and a living child was delivered by cesarean section followed by hysterectomy. Some element of the ovum must have protected the fetus against the radium. Gestation seems to whip up malignant disease anywhere in the body. The strain of delivery and the involution of the uterus favor the invasion of the uterine muscle by cancer in the vicinity. Cesarean section followed by hysterectomy is preferable to waiting for natural delivery.

June 25, 1921, **36**, No. 26

*Amyotrophic Lateral Sclerosis. C. Achard.—p. 299.
*Malformation of Cervical Vertebrae. A. Feil.—p. 301.
History of Therapeutic Pneumothorax. M. Pallasse.—p. 307.

Incipient Amyotrophic Lateral Sclerosis.—In Achard's case the man of 65 seems perfectly well except for a slight motor disturbance in the right hand. The aspect is like that of a monkey's hand, and he has not complete control of his thumb. The left hand is a little weak, but there is no atrophy of muscles such as is apparent in the right hand. He accepts this condition as dooming the man within a few years. The duration of amyotrophic lateral sclerosis is usually from two to four years, but rare instances have been known of survival for ten or sixteen years. Tentative arsphenamin treatment has not modified the clinical picture, confirming what Charcot called "the abominable prognosis."

Malformations of the Cervical Spine.—Feil discusses the anatomy and clinical picture of six different types of malformation in this region, with concrete examples and fifteen illustrations.

Revue Franç. de Gynécologie et d'Obstét., Paris

April, 1921, **16**, No. 4

*Vitiligo in Women. F. Jayle and H. Aubry.—p. 193.

Genital and Abdominal Vitiligo in Women.—Jayle and Aubry declare that vitiligo never develops in a woman with perfect ovarian functioning. They describe twenty cases to show the various types that may be encountered. The genital and abdominal forms must be regarded, they say, as a form of degeneracy. In thirteen cases of genital vitiligo, cancer developed in three. The logical treatment is indirect, through the endocrine glands. Cases are known of a complete cure under thyroid treatment.

Schweizerische medizinische Wochenschrift, Basel

June 30, 1921, **51**, No. 26

*Suture of Tendon in Hand or Finger. C. Kaufmann.—p. 601.
*The D'Espine Bronchophony Sign. T. Reh.—p. 604.
The Constitution in Pathology. K. Helly.—p. 607.
Traumatic Herpes of the Cornea. F. Stocker.—p. 610.
Teaching of Anatomy in Switzerland. H. Frey.—p. 615. Conc'n in No. 27.

Suture of Tendon in Hand or Finger.—Kaufmann quotes Dubs' statement that in the 235 cases of primary suture of an extensor tendon, which he has compiled, it was successful in only 51 per cent. and only in 10 per cent. of 117 flexor tendon cases. These bad results are traceable in part to the antagonistic behavior of the insured workmen, but mainly to the inefficient technic. Kaufmann has been constantly successful with the method he applies. With a longitudinal incision along the center of the nail phalanx, the skin has to be loosened up on each side and the skin here is too thin to stand this except on the thumb. Instead of a longitudinal, he makes a transverse curving incision, the convex side toward the nail. Through this the thin silk or catgut is passed through the stumps of the tendon, 0.5 cm. from the end, and tied with the least possible traction on the tendon. The incision in the skin is then coapted by pressure with gauze, and the finger is fastened to a finger splint in overcorrection for at least two and a half weeks. Success is certain with either primary or secondary suture of the tendon with strict asepsis and avoidance of antiseptics. He advises against ever attempting to suture the skin on hand or finger, and advocates keeping the patient in bed for a few days as the sovereign method. This may decide the course in the insured. If the ruptured tendon is immobilized in overcorrection immediately after the rupture of the tendon, it may heal without any functional disturbance. This occurred in one woman of 71 in the right ring finger. It healed in five weeks without interfering with piano playing. He reports in conclusion a few cases of more complicated tendon ruptures, but application of the principles above stated insured faultless healing in all.

The D'Espine Bronchophony Sign.—Reh expatiates on the general acceptance of the value of this whispering sign in diagnosis of tuberculosis of the intrathoracic glands, especially in children.

Archivio Italiano di Chirurgia, Bologna

June, 1921, **3**, No. 5

*Traumatic Pulsating Exophthalmos. V. Ferrero.—p. 405.
*Incarcerated Treitz' Hernia. G. Crescenzi.—p. 421.

*Mountain Sunlight and Healing of Wounds. L. Torraca.—p. 441.
Lymphangioma in Temporal Region. G. Roella.—p. 453.
*Immunization Against Pneumonia. E. A. Delfino.—p. 470.
Regeneration of Costal Cartilages. E. Sorge.—p. 481.
Bifurcation of Posterior Tibial Nerve. G. B. Macaggi.—p. 507.

Pulsating Exophthalmos.—Ferrero reviews the literature on pulsating exophthalmos from Travers' case in 1809 to date. In a case in his own practice there was evidently an abnormal communication between the internal carotid and the sinus cavernosus, of traumatic origin. The symptoms developed suddenly after the trauma, and permanently subsided after a ligature had been thrown around the internal carotid. This led to formation of a clot at the site of the damage in the artery wall, which soon permanently plugged the abnormal communication.

Incarcerated Treitz' Hernia.—Crescenzi knows of only one other case on record in which the hernia in the duodenojejunal recess was pedunculated so it could be treated like an ordinary hernia. In a grave case in his own experience there had been no symptoms from the viscera, but there had been two attacks of ileus during the last year. The intraperitoneal findings on palpation of the abdomen resembled those with a contracting gravid uterus.

Heliotherapy of Wounds.—Torraca has been conducting experiments in this line at the Monte Rosa Institute. This is 2,901 meters above sea level (about 8,710 ft.). The wounds on the guinea-pigs healed more rapidly when the animals were exposed to sunlight for a few hours each day. As the experimental lesions were aseptic, the benefit cannot be ascribed to a bactericidal effect of the rays.

Immunization Against Pneumonia from Aspiration.—Delfino regards it as very significant that 11 of 16 rabbits survived after they had been infected with staphylococci, introduced directly into the trachea on a foreign body, and then injected with a preventive vaccine. All of the 16 controls not given the vaccine died. On the other hand, all the rabbits died in a group of 8 infected with streptococci and treated with polyvalent vaccine, as also all in a group of 12 treated with normal horse serum instead of the vaccine, after infection with staphylococci or streptococci. These experiences encourage the use of a vaccine to ward off infection after a foreign body has been aspirated into the air passages. There is also a possibility that the vaccine might exert a curative action with infection already installed. In a recent case in D. Maragliano's service, before extraction of a metal pencil tip from the left bronchus of a boy of 7, two injections of polyvalent antipyogenic vaccine were given and one again afterward. The high fever and other signs of infection subsided although there had been some laceration of the mucosa during the extraction. The improvement that followed the first injection, even although the foreign body had not been removed, and the prompt recovery after extraction are certainly encouraging, Delfino remarks.

Pediatria, Florence

June 1, 1921, **29**, No. 11

*Parenteral Injection of Milk. F. Pentimalli.—p. 481.
*Bilirubin in Urine and Stools. A. F. Canelli.—p. 495.
*Serologic Diagnosis of Tuberculosis. R. Kharina-Marinucci.—p. 500.
The Schick Reaction. F. Lo Presti-Seminerio.—p. 503.

Experimental Protein Intoxication.—Pentimalli comments on the lack of toxic action from milk and casein injected intravenously in rabbits. They bore without apparent harm the injection of from 2 to 5 c.c. of raw, boiled or centrifuged milk on successive or alternate days or at longer intervals. Not until toward the third injection did symptoms of protein toxic action become apparent. Then symptoms of anaphylaxis became manifest, and some of the animals died in acute or protracted anaphylaxis, while others recovered under artificial respiration and ether. With the Rosenau and Anderson method, the treatment could be kept up for several months, postponing the anaphylactic state, but it finally developed in all, none of the rabbits escaping the final cachexia, even if the treatment had been discontinued. There was no evidence of immunity in any of the animals. One rabbit had four attacks of grave anaphylaxis in the course of six months in which it was given several series of injections of from 3 to 6 c.c. of centrifuged raw milk. Each time the anaphylaxis appeared after a shorter interval. The inevitable cachexia suggests that disturbances from protein intoxication may be an element in the clinical picture of certain morbid conditions with which it has not been connected hitherto.

The Bile Pigments in Urine and Stool in Anemia.—Canelli explains the differential importance of the percentage of bilinogen as throwing light on the transformations of hemoglobin, and hence aiding in classification of anemias, and in the prognosis. The nitric acid-zinc chlorid test for it in urine and stools is simple, and convenient for both children and adults. In chlorosis and school anemia, the proportion of bilirubin is subnormal.

Deviation of Complement in Diagnosis of Tuberculosis in Children.—The tests with 227 children confirmed that only a positive reaction can be regarded as decisive. An extract of tubercle bacilli made with water, ether and alcohol proved most reliable.

Riforma Medica, Naples

June 25, 1921, **37**, No. 26

*Burying Stump of Omentum. D. Taddei.—p. 601.
*Cholesterin Content of Blood Serum. G. L. Malerba.—p. 602.
*Torsion of Testicle in Pseudohermaphrodite. A. Pignatti.—p. 605.
*Plastic Operation for Femoral Hernia. S. Bile.—p. 610.
Present Status of Anaphylactic Hemoglobinuria. E. Pesci.—p. 612.
Present Status of Treatment of Suppuration in Lung. E. Aievoli.—p. 615.

The Stump of the Omentum.—A thread is passed through the expanse above after the stump has been ligated, the thread forming a V, the needle dipping into the tissues at the tip and at the upper ends of the broad V. The ligated stump is then turned up and, by pulling the thread, the stump is buried in a deep pocket.

Cholesterin Content of the Blood.—Malerba found that instead of the normal 1.2 or 1.8 per thousand, the cholesterin content of the blood ranged from 2 to 10 per thousand in 8 cases of chronic nephritis, inversely to the nitrogen content of the blood. It was from 2.5 to 2.7 per thousand in 4 cases of diabetes; in 4 cases of tumor in the liver, the range was from 3.9 to 4.3. With cholelithiasis, the range was from 2.4 to 3.5. It was within normal range in 2 cases of acute nephritis and in 9 cases of cardiovascular disease, but was below normal in 7 cases of pneumonia or typhoid. He gave cholesterin by the mouth in 2 cases of aplastic anemia with cholesterin content of only 0.8 and 0.83. The general condition improved, but the cholesterin content of the blood did not increase during the sixteen days of treatment. The cholesterin was given by the mouth in a 3 per cent. solution, from 2 to 4 tablespoonfuls, fasting.

Torsion of Testicle in a Pseudohermaphrodite.—Pignatti reports the discovery of this condition in operating on a girl of 14 sent to the hospital with the diagnosis of incarcerated inguinal hernia. The article is illustrated.

Plastic Operation for Femoral Hernia.—Bile has applied in two clinical cases the technic he describes with illustrations as a new procedure. After ligating and resecting the sac through a slanting incision, he draws the Gimbernat and Cooper ligaments together with two or three silk threads, and then cuts a square flap in the aponeurosis of the greater oblique and turns this over, suturing it to close the femoral canal. The edges of the gap in the aponeurosis are loosened up and drawn down and sutured to the turned over edge of the flap and beyond.

Mitt. a. d. med. Fak. d. Univ. Kyushu, Fukuoka

1920, **5**, No. 3. German Edition

*Transplantation of Fowl Tumors. K. Yamamoto.—p. 209.
*Rodent Ulcer of the Vulva. S. Kusuda.—p. 235.
*Ovarian Vesicular Cystoma. S. Kusuda.—p. 307.
*The Precipitin Reaction. K. Fujiwara.—p. 325.
*Injury of Hearing by Congestion in Head. T. Matsui.—p. 335.

Transplantation of Fowl Tumors.—Yamamoto reports extensive experimental research with sixty-one new cases of tumors in domestic fowls, and a tumor in a dog and one in a guinea-pig. The attempts to transplant benign tumors were invariably negative, even when the lipoid, fibroma, angioma, or adenoma tissue was implanted in the operative wound or in a spontaneous tumor. Small cell sarcomas also gave nega-

tive results, but implantation of two strains of spindle cell sarcomas from hens was always followed by growth of the implanted tumor, with metastasis in internal organs or only in adjoining muscle. The arrest or resorption of an already implanted tumor in fowls and the failure of the transplantation seemed to be intimately connected with the sexual function.

Rodent Ulcer of the Vulva.—Kusuda bases this illustrated study on ten cases and 144 articles in European and Japanese literature. The primary cause is some disturbance in the circulation in the region; excoriations and ulceration follow. The original disturbance may be due to syphilis or tuberculosis, but this is not necessarily the case. The ulceration is the main thing; the proliferation of tissue secondary. This is contrary to what is observed in elephantiasis, in which the proliferation is the main feature.

Polypous Ovarian Cystoma.—In one of Kusuda's three cases the cystoma was as large as a man's head and the center proved to be a dermoid cyst. In the third case the cystoma was twice the size of a man's head. The patients were women of from 42 to 56.

The Precipitin Reaction.—Fujiwara's experimental work has confirmed that the precipitate formed by the mixture of the antigen and the antiserum can be used to produce new precipitin by injection into animals. The immune serum thus derived gives the precipitin reaction with both the serums used. These guinea-pigs show symptoms of anaphylaxis when injected with either of these serums.

Injury of Hearing from Congestion of Head.—Matsui induced the congestion in the head of the anesthetized guinea-pigs by dividing the cervical sympathetic, applying a constricting band to the neck or allowing the animal's head to hang down. Nine photomicrograms show the serious results on the internal ear, the congestion inducing extravasation and mechanical injury. The injury was always greater in the labyrinth than in the vestibular apparatus.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, 1921, **163**, No. 3-4

*Köhler's Disease of Scaphoid Bone. E. Sonntag.—p. 145.
*Postoperative Peptic Ulcer. F. Mandl.—p. 167.
*Spontaneous Fracture of the Patella. F. Wagner.—p. 208.
Wound of Cervical Spinal Cord. J. Wieting.—p. 221.
*Parosteogenetic Juvenile Osteochondropathy. J. H. Zaaijer.—p. 229.
*Technic for Goiter Operations. J. Dubs.—p. 257.
*Decapsulation to Cure Phosphaturia. E. Birt.—p. 278.
Modification of Malgaigne's Exarticulatio sub Talo. G. Gaudlitz.—p. 284.

Köhler's Disease of Scaphoid Bone.—Sonntag adds two more cases to the forty-eight he has found on record in which pain, limping, tenderness, and sometimes redness of the skin above, were explained by the irregular outline of the unusually small, compact scaphoid bone in young boys. Girls are much less frequently affected. No complications have ever been observed, and conditions return to normal in days, weeks or months, confirmed by roentgenoscopy two or three years later. Treatment should be conservative.

Postoperative Peptic Ulcer.—Mandl's survey of German literature shows fully 200 cases of postoperative peptic ulcer, and in Hochenegg's service there were 8 cases known among the 600 gastro-enterostomy patients, 1907-1919. The intervals before symptoms developed ranged from three weeks to eleven years in all but one of his eight cases; in this there had been no respite from disturbances. He also analyzes 21 cases of peptic ulcer after gastro-enterostomy done elsewhere. The spontaneous cure of a peptic ulcer is of very rare occurrence, which renders particularly interesting the spontaneous cure which so often follows perforation of the peptic ulcer into the colon. In 50 per cent. of the recurring ulcer cases on record he found cardiospasm mentioned, and this was pronounced in one of his eight cases. The more one studies these rebellious ulcer cases, the stronger the conviction that nervous influences must be incriminated. Scraps of silk suture have been found so often in the vicinity of the peptic ulcers that there can be no doubt that this is a contributing factor in some cases. Recent research has confirmed the importance in prophylaxis of means to reduce secretion of hydrochloric acid.

Spontaneous Fracture of the Patella.—Wagner relates that tabes was responsible for five of the six cases on record, but in the case he describes the man of 50 showed signs of progressive dystrophia of muscles as the only pathologic finding.

Parosteogenetic Juvenile Osteochondropathy.—Zaaijer explains how this term includes and explains the conditions known as the Legg-Calvé-Perthes, the Schlatter and the Köhler diseases, and separation of the epiphyses. Owing to some congenital dystrophia, some developmental defect in the ossification center of the head of the femur or tuberosity of the tibia or scaphoid bone, the part does not develop quite normally for a time, but finally as growth proceeds, the condition rights itself. This occurs in girls earlier than in boys. He describes four typical cases encountered in the last year, and compares them with the literature and some anatomic specimens from cases of the kind. The latter confirmed his assumption that the developmental defect is mainly the interposition in the ossification center of irregular islands of cartilage. In one specimen, there was a mass of cartilage, about 4 mm. wide, encroaching on the ossification center of the head of the femur on both sides. The anomaly is not visible in the roentgenogram until the ossification begins to show the effect of this temporary hampering of the normal process. It may occur with or without trauma. (Compare with p. 484.)

Thyroidectomy Without Draining.—Dubs advocates drawing up the muscles and suturing them to roof over completely the stump left after enucleation or excision of the goiter. He then sutures the skin at once with or without draining. It seems to be impossible to prevent a little serum seeping into the space, but it is less with this technic and without draining than otherwise, and it prevents the oozing of thyroid juice into the operative wound. No subjective or objective disturbances could be traced to this "muscle tampon" in his forty cases thus treated in the last six months, and the healing was perfect. Of course, if the capsule can be sutured water-tight, the muscle suture is not needed. His tables show the far more perfect healing without disturbance of any kind with this technic, comparing 208 cases without draining with 364 drained cases in the last three years.

Decapsulation Cures Phosphaturia.—In the five cases on which Birt bases the above statement, the patients had suffered for years with attacks of kidney colic and other symptoms from their phosphaturia. He exposed the kidney, and when no calculi could be palpated in it, he merely slit the capsule. This decapsulation was followed by the complete cure of all the symptoms, and none of the patients has had any recurrence during the interval since, up to three years. Birt is instructor in surgery at the Shanghai medical school, and theorizes that in a tropical climate the kidneys outgrow their capsule, and the resulting compression mechanically hampers the passage of salts into the urine. Slitting the capsule relieves at once and permanently. In his latest cases he did this on both sides.

Deutsches Archiv für klinische Medizin, Leipzig

July 5, 1921, **136**, No. 5-6

*Arrhythmia. F. Herzog.—p. 259.
*Neurosyphilis. M. Staemmler.—p. 271.
*Action of Atropin on the Stomach. P. Hecht.—p. 296.
*Pigmentation in Addison's Disease. A. Bittorf.—p. 314.
*Infantilism and Dwarfism. G. Brandis.—p. 323.
*Adhesion of Layers of Pleura. H. Deist.—p. 347.
*Treatment of Cardiospasm. G. Boehm.—p. 358.
*Percussion Records. E. Schlagintweit.—p. 373.

Myogenous Arrhythmia.—In the two cases described by Herzog the arrhythmia was the result of impairment of the excitability of the auricle, but this did not hinder digitalis from curing the arrhythmia. He explains the mechanism of the characteristically protracted intervals.

Neurosyphilis.—The necropsy findings in one of Staemmler's two cases showed acute syphilitic meningitis in the young man, which had begun two and a half months after primary infection with syphilis. The acute onset, the fever and other symptoms suggested tuberculous meningitis, but no signs of tuberculosis could be found at necropsy. The

oculomotor paralysis had developed before the loss of consciousness, and there was no reaction to light in the paralyzed eye. In the second case the arteries nourishing the lumbar and lower thoracic spinal cord had become obliterated eighteen years after treatment for secondary syphilis. This entailed sudden paraplegia of the legs and paralysis of the rectal and vesical sphincters, with death in seven weeks. These cases belong in the group of supposedly properly treated syphilis. Nonne found in 160 cases of cerebral syphilis that no treatment had been given in 58, and inadequate treatment in 16, while 86 had been treated according to the technic accepted as the best at the time. No benefit from neo-arsphenamin or mercury could be detected in either of Staemmler's cases, although five clinicians have reported instances of rapid subsidence of syphilitic meningitis under specific treatment.

Action of Atropin on the Stomach.—Hecht's research was done on the surviving stomach of rats. It confirmed that the variability of the action of atropin is due to the presence or the lack of peristalsis-inducing substances in the stomach wall, and of cholin in particular.

The Pigmentation in Addison's Disease.—Bittorf presents evidence that the bronzing is due to formation of oxidase in the epithelium.

Infantilism and Dwarf Growth.—Brandis' four cases testify to the predominant rôle of the anterior lobe of the pituitary in stunting the growth. Treatment with hypophysis extract failed to induce any benefit.

Experimental Adhesion of Layers of Pleura.—Deist injected turpentine into the pleural cavity of rabbits to induce adhesion, and then applied measures to check the production of fibrin and thus abort the adhesion. Intrapleural injection of a 10 per cent. solution of sodium chlorid seemed to answer this purpose. In four clinical cases the fibrin and fibrinogen content of the pleural effusion five days after the injection was only 50 per cent. of what it had been before. In conclusion he extols the reliability of the pneumograph in determining the existence and the location of adhesion of the layers of the pleura, preliminary to pneumothorax. The findings were correct in twenty-nine of thirty-one pneumothorax cases.

Treatment of Cardiospasm.—Bochm investigated in six patients with cardiospasm and dilatation of the esophagus the response to atropin, pilocarpin, epinephrin, opiates and other drugs, special diets, dilatation of the stomach and hypnosis. All were examined under roentgen control. As none of the drugs seemed to modify the cardiospasm, the conclusion seems evident that the disturbance is not a spasmodic closure. The trouble must be in the lack of the normal mechanism for opening the normally contracted cardia. The resting cardia must be normally contracted, and it must open under psychic influences during the physiologic act of swallowing. The proof of this assumption is supplied by the cardia becoming permeable under the influence of hypnosis and suggestion. The practical conclusion of the research is that only psychotherapy or operative relief can be considered. For the latter he advises transpleural lengthwise slitting of the cardia and closing it again with a transverse suture. Epinephrin is useful for differentiating organic from functional stenosis, as this is the only substance that abolishes the stenosis, but this action is briefly transient.

Percussion Findings.—Schlagintweit reproduces curves obtained by percussing through a gap in the base of a funnel placed on the chest. A tube connects the tip of the funnel with a sensitized paper drum with light attachment.

Beiträge zur klinischen Chirurgie, Tübingen

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*Present Status of Surgery. F. Sauerbruch.—p. 234.
Acquired Spinal Cord Disease. A. v. Eiselsberg.—p. 249.
Coxa Plana (Perthes). E. Kreuter.—p. 263.
*Plastic Operation on Lips. F. König.—p. 288.
*Antethoracal Artificial Esophagus. M. Madlener.—p. 299.
*Diffuse Suppurative Peritonitis. M. Strauss.—p. 303.
Chronic Ulcer of Body of Stomach. E. v. Redwitz.—p. 305.
Gallstone Disease Plus Cancer of Bile Duct. Gebele.—p. 316.
Torsion of Gallbladder. M. Strauss.—p. 322.
Ligation of Hepatic Artery Cures Intrahepatic Traumatic Aneurysm. F. Colmers.—p. 324.
*Reflex Anuria. E. Pflaumer.—p. 326.
Bent Wire Found in Ureter. F. Schlagintweit.—p. 333.
Roentgen Measurement of Bladder Diverticulum. Id.—p. 334.
Advantages of Sectio Alta Over Retention Catheter. Id.—p. 335.
Roentgen Dose with Gastro-Intestinal Cancer. J. Schlaaff.—p. 336.
Puzzling Diagnosis. L. Duschl.—p. 342.
Successful Treatment of Exstrophy of the Bladder. Pflaumer.—p. 345.
Lymphosarcomatosis of Small Intestine. A. Krecke.—p. 348.
Cylindroma of the Tongue. O. Preusse.—p. 355.
Trauma of Spine and Serous Meningitis. E. Melchior.—p. 361.
Topography of Recurrent Nerve. L. Franz.—p. 366.
Lengthwise Resection of Stomach for Ulcer in Lesser Curvature. F. Neugebauer.—p. 369.
Ruptured Malarial Spleen. F. Pendl.—p. 386.
Splenectomy After Rupture of Spleen. H. Hauke.—p. 389.
Volvulus of Sigmoid Flexure. R. Reichle.—p. 406.
True Hermaphroditism. J. Losert.—p. 411.
Perthes' Disease and Köhler's Disease. S. Weil.—p. 418.
Oxyurids in Appendix. L. Drüner.—p. 438.
Roentgen Findings in the Trachea. H. Kästner.—p. 455.

Present Status of Surgery.—In this review of the prevailing tendencies, Sauerbruch comments on the present vogue of local anesthesia, saying that it is quite a question whether local anesthesia is any less dangerous than inhalation anesthesia. Postoperative pneumonia occurs just as frequently after one as after the other; this was confirmed anew in a long series of hernia operations recently. Another drawback is the injury to the tissues from the fluid injected for their infiltration; necrosis of the fascia is more likely after local than after general anesthesia. He mentions three fatalities after a harmless operation on jaw or ribs, evidently from toxic action from the local anesthetic; some persons are extraordinarily susceptible to small amounts of cocain or procain. But the greatest drawback from the medical standpoint is the moral effect on the patient, from even an entirely painless operation. "No epochal surgical achievements have been reported in this first quarter of the century; further progress in surgery depends on the perfecting of diagnosis." He anticipates speedy progress in this line in disease of the central nervous system and organs in the chest. "The high hopes placed on radiotherapy of malignant disease have not been realized. Notwithstanding the perfected technic and diagnosis, the favorable results at first often yield to recurrence. . . . But the way a carcinoma or sarcoma may retrogress completely under radiotherapy amply justifies further study. Its lack of close connection with clinical medicine is its greatest fault." . . . "It is foolish also to suppose that the experiences with gynecologic cancer can be applied to other forms. Progress will depend now more on biologic study of the cancer forms, and on means to reduce pain before, during and after the operation."

Plastic Operation on the Lips.—König comments on the fine outcome possible when half of one lip can be saved and twisted around to complete the other.

Artificial Esophagus.—Madlener reports excellent results in a case of stricture of the esophagus from drinking lye, treated by making a new esophagus out of skin rolled up to form a tube as for cinematization of a stump. The cure was complete in three and a half months.

Treatment of Diffuse Purulent Peritonitis.—Strauss does not ascribe the recovery in the four cases he describes to the simple procedure he applied. But it certainly helped, he says. He merely drew the appendix up and fastened it to the skin; flatus and thin stools escaped by this appendicostomy, and the evil results of paralysis of the bowel were thus averted. In two cases the peritonitis was from perforation of a gastric ulcer, fourteen and twenty-six hours before the operation.

Reflex Anuria.—Pflaumer's research on dogs demonstrated that anuria does not inevitably follow from reflex action when there is high intrarenal pressure or intense ischemia.

Deutsche medizinische Wochenschrift, Berlin

June 23, 1921, **47**, No. 25

Basis for Specific Tuberculosis Therapy. H. Selter.—p. 701.
*Thoracoscopy. H. C. Jacobaeus.—p. 702.
Pain in Both Sides of Abdomen as Source of Error in Gynecologic Diagnosis. R. T. v. Jaschke.—p. 705.
Traumatic Epilepsy and Its Treatment. W. Eliasberg.—p. 707.
*Perforations of Esophagus into Air Passages. F. Peltason.—p. 709.
Jaundice After Arsphenamin. P. Tachau.—p. 711. Begun No. 24, p. 677.

After-Treatment of Pleuritis. O. von Niedner.—p. 712.
Causes and Treatment of Foot Affections. F. Loeffler.—p. 715.
Treatment of Conjunctivitis. E. Richter.—p. 717.

Practical Importance of Thoracoscopy.—THE JOURNAL mentioned Jan. 18, 1913, Jacobaeus' success in direct visual inspection of the interior of the thorax in 71 cases and of the abdomen in 59. He uses a No. 12 Nitze cystoscope and for ten years has been applying this endoscopy to the pleura and peritoneum in the diagnosis of various pathologic conditions, especially in the liver and spleen, and with bands interfering with the movements of the intestines. In the thorax, it takes the place of the exploratory laparotomy for the abdomen. The surface of the pleura can be easily inspected almost throughout. It allows adhesion and bands interfering with therapeutic pneumothorax to be broken up. He cites a number of cases in which the attempt was made to break up adhesions through a thoracotomy, all with aggravation and generally a speedily fatal outcome from infectious complications. With direct visual inspection, however, it is a comparatively easy matter to introduce the actual cautery through another puncture hole, and sever the bands with the galvanocautery. This has been done now by himself or in other clinics in 100 cases to date. He introduces the thoracoscope under local anesthesia, generally on the anterior axillary line between the seventh and the ninth interspaces, or a little lower or higher according to the location of the bands. He usually severs the band at its narrowest point. The pain is moderate, as a rule. Practice is necessary to manipulate the cautery under direct visual inspection in this way. When the layers of the pleura were adherent over a considerable expanse, it has sometimes taken an hour or two to separate them. The electric current must not be too strong or there is danger of hemorrhage from the stump. No death has occurred from the procedure and only one considerable hemorrhage; this was in Dahlstedt's case. The pleural cavity filled up with blood, but the patient gradually recuperated without ill results. The one complication to be feared is pleuritis. In 3 cases an effusion developed several months later which in the course of a few months became a tuberculous empyema, and the patients died a year or two afterward. This secondary pleuritis was observed in 10 of the total 100 cases, but empyema followed only in 5 instances. The pleuritis was observed only in the cases requiring extensive separation of the layers of the pleura. He estimates that by this means artificial pneumothorax can be applied to two thirds or more of the persons who otherwise would be excluded from its benefits. In conclusion he describes six cases of tumors in the chest which it proved possible to locate with precision by the combination of insufflated air, endoscopy and fluoroscopy.

Roentgen-Ray Diagnosis of Abnormal Communication Between the Esophagus and the Air Passages.—Peltason reports several cases in illustration of the practical advantages of the roentgen-ray procedure over older methods of examination for the diagnosis of perforation from the esophagus into the air passages. One objection to the method lies in the fact that some of the contrast suspension may get into the air passages, and show the characteristic ramifications of the bronchial tree, as it is drawn down. This objection applies only to cases with sensory or motor paralysis of the larynx, and can be eliminated by an antecedent examination of the larynx. The small amount of the contrast suspension that makes its way through the perforation into the air passages he thinks may be regarded as negligible, as, if it allows passage of the contrast suspension, it must be allowing also passage of particles of food and drinks. These patients usually succumb to aspiration pneumonia in time, but the bronchial mucosa is surprisingly tolerant under these conditions.

Münchener medizinische Wochenschrift, Munich

June 24, 1921, **68**, No. 25

Chronic Influenza. Treupel and Stoffel.—p. 763.
Susceptibility of Animal Tissues to Roentgen Rays. Schwarz.—p. 766.
Effect of Radiotherapy on Generative Processes. Werner.—p. 767.
Respiratory Treatment in Tuberculosis of Lung. Hofbauer.—p. 768.
So-Called Arthritic Spirochetosis. A. Stühmer.—p. 769.
Two Peculiar Cases of Intermittent Fever. H. Fendel.—p. 771.
Gas-Containing Liver Abscesses. P. Schenk.—p. 771.
Diphtheria Bacilli in Sputum. H. Lippmann.—p. 772.
Pándy Test in Infantile Tuberculous Meningitis. Widmaier.—p. 772.
Plastic Treatment of Hypospadia. R. Niedermayr.—p. 773.
Modification of Schloffer Phimosis Operation. Schöning.—p. 776.
Treatment of Genu Varum. A. Schanz.—p. 776.
Treatment of Oxyuriasis. K. Ochsenius.—p. 778.
Protection Against Smallpox. G. B. Gruber.—p. 778.
Local Anesthesia in Connection with Punctures. A. Brecke.—p. 778.
Typical and Atypical Averages in Statistics. G. Oeder.—p. 779.
*Occultism and Familial Insanity. G. Kolb.—p. 779.
Serotherapy in Diphtheria. M. Pfaundler.—p. 781.

Familial Insanity.—Kolb refers to a family of eleven members, all of whom had to be committed to the hospital for the insane. After the analogy of similar cases, he thinks it may be assumed that primarily only one member of the family may have been actually insane and that the other members became infected psychically, so to speak, by the one member (either directly or through the mediation of certain other members). He regards it as possible that the revival of spiritualism and occultism since the war may have played a part in the result.

Wiener klinische Wochenschrift, Vienna

June 9, 1921, **34**, No. 23

Psoriasis. P. G. Unna.—p. 275.
Processes Increasing Cerebral Pressure. Marburg.—p. 277.
The Jarisch-Herxheimer Reaction. Oppenheim.—p. 278.
Negative Phase of Sensitiveness to Tuberculin. F. Hamburger and R. Peyrer.—p. 280
Apparatus for Heliotherapy of Larynx. Jonas.—p. 280.

Zentralblatt für Chirurgie, Leipzig

June 25, 1921, **48**, No. 25

*Removal of Suprarenal Gland in Epilepsy. C. Steinthal.—p. 878.
*Extirpation of Suprarenal Gland in Epilepsy. S. Sándor.—p. 881.
*Evacuation of Stomach Before Operating. E. Roedelius.—p. 883.
*Technic for Fixation of Spine in Spondylitis. Pólya.—p. 884.
Quick Method of Tying a Surgical Knot. B. von Mezö.—p. 886.

Removal of Suprarenal Gland in Treatment of Genuine Epilepsy.—Steinthal reports his lack of success in the treatment of seven cases of epilepsy by removal of the suprarenal gland. The five males were between 15 and 23; the two women were 19 and 29. In only one case was there a definite history of a preceding trauma. Küttner's technic was followed in all its details. In not a single case was there marked and permanent improvement following the operation. Five of the seven cases were of severe type, so that it might be urged that the "epilepsy paths" had become such deep ruts that a cure was exceedingly difficult, but at least two of the cases were mild. Therefore, Steinthal thinks that removal of the suprarenal gland cannot be regarded as a therapeutic remedy for epileptic seizures.

Treatment of Epilepsy by Extirpation of the Suprarenal Gland.—Sándor reports favorable results in four cases of epilepsy in which he removed one suprarenal gland. The longest interval is only three months, while the other cases are more recent. The results so far are excellent. It remains to be seen how permanent they will be. The first patient operated on had been confined to his bed for several months and during the three months previous to the operation was not free from attacks for more than half a day at a time. Now (three months after operation) he can walk about actively, although he still has mild attacks about every two weeks. The jerking is confined to his hands and arms. He does not fall down during the attacks. He merely stands still a few minutes; then walks on. As there was a very slight loss of blood during the operation, the improvement cannot be due to that cause. Sándor thinks that the method is deserving of further trials.

Use of Stomach Tube Before Operations for Perforating Ulcer.—Roedelius formerly followed the general custom of not emptying the stomach of its contents before an operation for perforating ulcer. The perforated organ seemed to be generally regarded as a *noli tangere*, but of late he has overcome his scruples and has used the stomach tube to remove the contents of the stomach before such operations. He is much better satisfied with the results than by the old method. He does not think it is at all dangerous. If the opening in the stomach should be made larger by the stomach tube, which is not at all likely, he does not see that it would matter materially as the perforation will soon be closed.

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Technic for Fixation of the Spine in Spondylitis.—Pólya recommends a modification of the Albee operation. He found that in the Albee operation the transplanted bone lies too near the surface and is kept in place only under great tension, by tied sutures, which, if they tear, cause a dislocation of the bone graft. To be sure, such accidents do not occur frequently, but they have been reported in the literature. The modified technic he proposes will, he asserts, avoid the danger, and is, at the same time, simpler and easier than the original method. Instead of implanting the bone graft in the split spinous processes, as Albee recommends, he advises inserting it between the vertebral arch and the spinous processes, turning back the whole set of spinous processes by chiseling them loose at their base. The bone graft is pushed into this space where it holds firmly without the need of sutures. With this procedure it is possible to use a piece of resected rib, which fits well in the bed prepared for it, in place of the customary strip of the tibia. This gives the further advantage that the position of the patient does not need to be changed during the operation, and that there is only one field of operation to be disinfected. He describes his operation in detail, with five illustrations. He has operated in this manner in eight cases, using six times the tibia and twice a piece of a rib, and is well satisfied with the results.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

June 4, 1921, **1**, No. 23

*Elimination of Hippuric Acid. I. Snapper.—p. 3044.
*Coagulation Time of Blood. J. Geers.—p. 3051.
*Public Health Work in East Indies. C. D. de Langen.—pp. 3056 and 3064.
*Syphilitic Disease of the Kidneys. W. A. Weisfelt.—p. 3073.
*History of Conceptions of Insanity. H. Breukink.—p. 3076.
Care of the Insane in China and Japan. S. Koster.—p. 3100.

Hippuric Acid Test of Kidney Functioning.—Snapper's tabulated data show that a normal person on a milk and porridge diet, ingesting 5 gm. of sodium benzoate at 9 a. m., excretes nearly the whole as hippuric acid within twelve hours. Healthy kidneys may eliminate it so completely that the hippuric acid may form 2 per cent. of the urine. Patients with croupous pneumonia and retention of sodium chlorid, those with complete obstruction of the common bile duct, and those with a bile fistula, eliminated almost the whole of the sodium benzoate as hippuric acid within twelve hours. In all the tests the elimination of hippuric acid in the second twelve hours kept within normal range. It is evident, he says, that all persons with sound kidneys, irrespective of other conditions, eliminate within twelve hours all the hippuric acid formed from 5 gm. of sodium benzoate, and fully 75 per cent. of it in the first six hours.

Estimation of Coagulation Time of Blood.—To insure precision, Geers has the blood flow by gravity through a glass capillary tube heated to the same temperature as that of the inside of the body of the subject. With hemoptysis, this is assumed to be from 102.2 to 104 F. The moment that the clot begins to cling to the glass wall, the gentle force is no longer able to move the blood along. This arrest of the current is plainly evident, and he accepts as the coagulation time the interval between the emergence of the drop and the arrest of the current. He uses a horizontal capillary tube about 45 cm. long, with one end bent up at a right angle for 3 cm. Each test requires a new capillary tube. He describes the procedure and says that in normal conditions the first drop coagulates in 120 to 150 seconds, while the succeeding drops coagulate in an average of 50 seconds. Geers relates that the first drop of his own blood takes 290 seconds to coagulate, but the coagulating time of the succeeding drops is within normal range. This and some other data cited sustain his assumption that the true measure of the coagulating power of the individual blood is that of the first drops. One of his charts shows the marked acceleration of coagulation which followed after an enema of 500 gm. of milk. Drops 14 and 15 coagulated immediately; they did not even run into the capillary tube.

The Medical and Public Health Service in the Dutch East Indies.—De Langen describes the circumstances which recently made it necessary to accept foreign physicians for this service, as there were no applicants from the members of the profession in the Netherlands. Fifty alien physicians have thus been appointed for this work in the tropics, but hereafter only those with degrees from Netherlands medical schools are to be accepted.

Syphilitic Disease of the Kidney.—The man of 48 had fever, dyspnea, insomnia, edema, and 11 per thousand albumen in the urine. The albuminuria and edema fluctuated under bed rest, restriction of fluids and digitalis, and then hydrops, ascites and anasarca predominated in the clinical picture, with terminal pulmonary edema. The Wassermann reaction had been 4 plus, but little benefit followed specific treatment.

Mental Disease in Olden Times.—Breukink gives twenty-one reproductions of paintings, mosaics and tapestries portraying subjects with nervous and mental disease, the "possessed of devils" and the driving out of devils. He says that the Vedas, 1500 years before Christ, described sixteen different forms of mental disease, and Hippocrates regarded insanity as a disease of the brain, giving an excellent description of melancholia and alcoholic delirium. One of the illustrations shows the driving out of devils by St. Dymphne at Gheel. According to the legend, he was a Christian prince in Ireland in the seventh century, but had to flee from his heathen relatives and sought refuge at Gheel. Here he performed miracles, healing the "possessed of devils" who congregated at Gheel from far and near. Gheel is still renowned as a colony home for the insane.

Hygiea, Stockholm

June 30, 1921, **83**, No. 12

*Spinal Cord Tumors. A. Wallgren.—p. 385.

Present Status of Spinal Cord Treatment.—Wallgren emphasizes that there is no one symptom characteristic of a spinal cord tumor; it is the combination of symptoms that is instructive, and the sequence in which they develop.

Ugeskrift for Læger, Copenhagen

June 9, 1921, **83**, No. 23

*Active, Latent-Active and Inactive Syphilis. T. E. H. Thaysen.—p. 759.

Active, Latent-Active and Inactive Syphilis.—Thaysen discusses the cases in which a positive Wassermann reaction does not indicate active syphilis, analyzing active syphilis from both the clinical and the biologic standpoints, and the biologic definition of active as applied to a late latent phase of the disease. He declares that notwithstanding the positive Wassermann reaction in a late latent stage, the syphilis may be regarded as inactive in a large proportion of cases.

June 23, 1921, **83**, No. 25

*Peculiar Case of Actinomycosis. J. Riising.—p. 833.
*Bacteriologic Study of Chronic Mucous Colitis. L. Bahr (Copenhagen).—p. 838.
*Isolation in Contagious Diseases. S. Hansen.—p. 841.

Actinomycosis of Spine.—Riising's retrospective diagnosis in the case in a man of 41, here described, is primary actinomycosis of the lumbar vertebrae, spreading to the hip bone and perforating the skin. Harbitz found only one case of primary actinomycosis of the skin among the eighty-seven cases of actinomycosis that have been published in Norway.

Chronic Mucous Colitis.—Bahr describes a bacterium, cultivated from a case of this kind in a woman of 32, which differs from the classic descriptions. He appeals for specimens of stools from such cases.

Isolation in Contagious Diseases.—Hansen gives figures which show that in Copenhagen the number of cases of scarlet fever in children under 5 has dropped from 473 to 279 per thousand since 1876, and the cases of diphtheria from 516 to 343. The cases in older children have increased during this period, and the number of cases in the younger children would undoubtedly have increased to correspond if it had not been for the isolation enforced. This assumption is confirmed by the measles figures. As isolation is not enforced for measles, the figures show a parallel range for the younger and older groups of children, with scarcely any fluctuation in the figures year after year, the number in the younger children being constantly between 500 and 600 and in the older children between 400 and 500 per thousand since 1876.

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